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ABSTRACT

This is a compilation of study guides written around a series of 28 television lectures. Each guide gives a resume of the content of the lecture, questions to test recall, questions for reflection, suggestions for individual and group action in improving the environment, and a list of related readings. The lectures deal with population problems, conservation, and pollution. Desirable individual and social attitudes and actions are emphasized throughout. (EB)

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# MAN AGAINST HIS ENVIRONMENT

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# MAN AGAINST HIS ENVIRONMENT

By

Robert Rienow

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These lectures were written in conjunction with the book: Moment in the Sun by Robert and Leona Train Rienow; Dial Press, New York, 1967, Ballantine Books, New York, 1969. It is suggested that the book be used as a basic text to complement the course.

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Suggested use of this series is in discussion groups to stimulate political and social action.

## Note to all Lecturers

In response to the great numbers of individual citizens who have written in asking "What can I do to help?" projects have been drawn up to complement the lectures.

It must be remembered that although the passage of laws for the control of pollution, insecticides, landscape destruction, and so on, are essential and require public drive for their enactment, the most vital ingredient of all progress in redeeming our degraded world must be passionate citizen interest and action. It may be said categorically that no law will be enforced -- no improvement in environment attained -- until and unless vocal, continuing public support is behind it.

In other words, the passage of an antipollution law is like the wiring of a new house. The wiring is essential to having light. But the house will remain in darkness until the citizen-owner enters and snaps the switch. Recently I inquired of the proper official in Albany why a certain stack emitting volumes of smoke, in direct violation of the law, was permitted to continue polluting the air of the neighborhood. The response was, simply, "Nobody has protested about it yet."

It must also be remembered that it is local attitudes, and local action, that must be relied on to redeem the condition of the nation as a whole. If each citizen cleans up his own backyard and street frontage, the entire city is rehabilitated. In the same way, if each community and county solves its own problems, the entire country will be restored.

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Study Guide
Lecture #1

## Man Against His Environment

### Resumé

This lecture is designed to undo our complacency about our environment and show the danger inherent in fomenting a constant battle with nature.

Man assumes the role of arbiter in his relation to the myriad forms of life on earth, but he does so out of ignorance. He pits himself against his environment. In the abuses that befall him he has proof of Goethe's observation that "Nothing is more dangerous than ignorance in action."

We are the victims of cultural inhibitions that stand in the way of better stewardship of our surroundings. They constitute a set of beliefs in materials progress, bureaucratic competence, scientific prowess, pursuit of personal gain, and population growth.

The abuses to our environment are in reality but symptoms of these more fundamental social ills. Their cure rests in the understanding approach of the ecologist, advance agent of a weird and miraculous and evolving science.

We are only a part of a great web of life, and we break the weave at our own jeopardy.

The troubles of the environment find themselves translated ultimately into political issues. Our gutting of our habitat not only impoverishes our future, it deprives us forever of the quality of life.

### Recall

1. What are the signs around us of our ecological blindness?

2. What economic drives undermine our latent desire for a livable environment?

3. Is the analysis of a living culture possible?

4. What cultural viewpoints contribute to our environmental blunders?

5. How does the science of ecology become the basis of understanding of an improvement in our environment?

6. In what sense are environmental decisions political decisions?

## Reflection

1. Why must man adjust his philosophy to ecological truth?

2. Is there an "establishment" of exploitation?

3. Do you see any hints here that the quality of life is undermined by our quantitative expectations?

4. How does each of the following propositions strike at the quality of our environment:

   a. More of everything is better than less. Expansion is progress.

   b. The government won't let anything happen to us.

   c. Science will remedy our errors.

   d. Get what you can get, but get it now.

   e. Have as many children as you want, if you can pay for them.

## Redeeming the Environment

### Individual and Group Action

1. Do the beliefs that were asserted to exist and that beat down on the environment truly prevail? Collect and analyze carefully the corporate advertisements that lend credence to or disprove the points made in this lecture. Which of them are frankly designed to allay public concern and promote public apathy regarding the condition of the environment? Which of them encourage waste? Over-use and over-production? Appeal to speed and greed, rather than need? Which of them are constructed to perpetuate the outworn and disproved myth of everlasting plenty?

If any ads offend you in any of these categories, write the corporations responsible for an explanation, and register your protest. The officials are much more sensitive to the opinion of a thoughtful, inquiring citizen than you believe. The ad is drawn up to appeal to the kind of person they think you are; in changing that image you can change their entire approach to selling.

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Study Guide
Lecture #2

## Too Many People

### Resume

The growth of the human species is out of control. Historically the addition of a billion people to the population has come about in less and less time until today it occurs in a span of fifteen years.

Our trouble stems directly from our introduction of control of deaths without a compensating control of births. A truly phenomenal growth factor is built into the statistics for the immediate future with near certainty. That is, the proportion of the population of breeding age is so large that even with unanticipated restraint a bulge in population is sure.

Population pressure is the direct cause of environmental problems. It is people who crowd outdoor recreational space, whose wastes defile our surroundings, and whose demand for food compels use of pesticides and chemicals to foul our streams and seas.

The nitrogen applied to our farm lands washes into lakes and rivers where, added to the nitrates of sewage, it feeds the algae. The algae prospers, dies and rots and makes poisonous brew. All this in consequence of our need and concern for feeding ever-increasing masses of people.

Monoculture pressed upon us by too many people, subjects our crops, too, to depredation by harmful insects because there are no barriers between plants. Thus nature's battle plans against any particular insect are disrupted and man dominates the fray -- with poisons. And more poisons. So we have a pesticide problem.

Worst of all a civilization faced with ever more mouths to feed, more people to satisfy, dedicates its great effort, devotes itself, to the challenge of keeping ever more people alive. This goes on endlessly supported by humanitarian motives but, in reality, debasing the mission of a more noble goal for society.

### Recall

1. How do the statistics prove we are overbreeding in the world?

2. Is there a relation between pollution and population?

3. Can you trace the path of nitrate pollution from farm to lake and stream?

4. How damaging is nitrate pollution?

5. How is nitrate pollution related to population?

6. What is Monoculture?

7. Why does the use of pesticides follow on the practice of monoculture?

8. What evidence is there that we worship fecundity?

9. How much arable land does it take to sustain the American diet?

## Reflection

1. Is it likely that man as a species -- like any other -- suffers a violent setback when his numbers proliferate unduly?

2. Is the population problem primarily a feeding problem? Explain.

3. Does it appear that our natural environment can withstand the pressure of trying to feed hundreds of millions about the world. What then happens to the moral issue?

4. Pesticides, it has been noted, like most of man's interventions, simplified the ecosystem. What restraints are lost in a simplified system?

5. Is it true that a primary mission of food production debases the more noble purposes of a society?

6. Can we await individual decisions of family planning or are the times critical enough for collective controls?

## Redeeming the Environment

### Individual and Group Action

1. Investigate the abortion laws of your state. What, precisely, do they call for? In the view of our environmental problems how should they be changed? Prepare resolutions for groups to which you belong on the issue with

an outline of the environmental arguments on the problem.

> [The technique of the group resolution has great potential. It carries much more weight than a placard. Learn how to draft such a resolution and how to make the best use of it after passage through distribution to press and public figures.]

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## Resumé

### Purpose

Since the dawn of history man has worshiped certain natural and unnatural phenomenon. We no longer burn incense to sacred cows. Instead, we worship the production graph, the Gross National Product. As contemporary Americans, we pledge ourselves as a great people and a great nation to expend our lives, goods and energies in pandering to an overexpanding, insatiable appetite. In this lecture, you are asked to ponder whether this constant expansion will not deface, disfigure and despoil the environment beyond the point where any other values can be recognized.

### Definition of the Growth Panic and Its Effects

Here, we question the national principle that the bigness of a nation can be measured only in terms of its quantitative growth. Growth -- any kind at all as long as it's jumping -- is said, in the western nations, to be synonymous with "progress." What some have labelled "economic expansion," I call The Growth Panic. Economic expansion is not synonymous with progress because, besides affluence, it brings such things as the growth of smokestacks, transmission lines, cancer, nervous disorders and mental aberrations.

The effects of the growth panic are found wherever American standards are aped. For example, the copying of our industrial standards in Germany and Russia has engendered the almost irredeemable pollution of the Rhine and Volga rivers. This incessant preoccupation with expansion has changed our values. The promises and speeches of our politicians do not ask if we want such things as more peace of mind, more carefree living, more quiet or more health. Rather, they promise us more roads, more industry and more trade.

Our offspring will feel the full effects of our adoration of growth because they will be deprived of all choice of environment. We are making irreversible decisions with no consideration of their effects other than whether they will enhance our economic expansion.

## The Question of Technology

Some have justified the growth panic in terms of the advances in technology. However, they assume that these innovations are both neutral and beneficial in their effects upon man and his environment. I question these assumptions and ask whether man shall be the Master or the Victim of his technology.

## A National Ecological Trust: A Recommendation

In order that we may have a sane procedure for assessing the consequences of our actions upon the environment, many scholars, government officials and concerned citizens have proposed the establishment of an environmental council similar to England's National Ecological Trust. This council would be a revered, prestigious, and knowledgeable board of environmental experts free of industrial attachments whose goal would be the protection of the environment. The establishment of such a council would mean that, for the first time in our history, the environment would have an official champion.

## Recall

1. Define and give examples of what is meant by "the growth panic."

2. What effect does "the growth panic" have upon man's environment, his values and his heirs?

3. What human values are implicit in the nation of "the growth panic?"

4. How is the new technology related to the problem of "the growth panic?"

5. What is meant by the term National Ecological Trust? What would be its structure and its goal?

## Reflection

1. Evaluate the following quotation: "Are we sacrificing all the pleasure of living, the beauty, the amenities, to the appetite of industry? Can we continue to go to the church of the G.N.P. and not give up our entire heritage in its collection plate?"

2. Should the ecologist have a role in the way man changes his environment? Why or why not?

3. Is progress synonymous with economic expansion? Discuss and evaluate the values which underlie your answer.

4. Evaluate the following question: Shall man be the Master or the Victim of his technology?

5. Evaluate the proposal for a National Ecological Trust in terms of the concerns which have motivated its recommendation.

## Redeeming the Environment

### Individual and Group Action

1. Make a list of items in your standard of living that you could do without. Now, what environmental amenities would you substitute for the things you have abandoned? Can you consciously challenge the commitment of appetite that society has chained you to?

2. Try the face-to-face route of changing public opinion which sociologists say is so important. Monitor your own personal conversations at meetings, at church, over the luncheon table, to jar loose your niche of society from the worship of growth.

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Study Guide
Lecture #4

## Even the Greatest Lean

## Resumé

### Purpose

The goal of this lecture is to develop an awareness of the importance of the study of ecology and to convey a feeling for the concerns of this subject.

### Definition and Discussion

Ecology may be broadly defined as the study of the interdependence of all life forms. The ecologist is concerned with such questions as: why are there many schools of fish in one part of the ocean and not in another? He is the man who remained in the fields and forests to study nature while other scientists, such as the botanist and the zoologist, moved indoors into the laboratories for most of their work.

Ecology may be studied from a variety of perspectives. Three of these are the parasitic, the predacious and the symbiotic. The relationship between the cow and the cowbird, which is said to capture the annoying insects flying about the cow's legs, illustrates the mutually beneficial living together of two dissimilar organisms which characterizes symbiosis.

The study of ecology can absorb a lifetime due to the vastness of the subject. The series of examples given in the lecture demonstrates the depth of this subject.

### Developing An Ecological Conscience

Our ignorance of the intricacies of ecological relationships has borne disastrous consequences. The destruction of a multitude of ancient civilizations as well as current problems, such as the series of recent floods in Southern California, are examples of the results of our lack of, or disdain for, ecological knowledge. In order to abolish this ignorance, thoughtful, concerned, individuals, like Aldo Leopold, have called for the development of an "ecological conscience." It seems clear that only through the attainment of environmental education will man be able to understand nature's laws and thereby, safeguard his existence.

## Recall

1. Define Ecology.

2. Define the terms "naturalist" and "ecologist."

3. Broadly, what differentiates the ecologist from the botanist and the zoologist?

4. What are three of the ways in which ecology may be studied? Cite examples.

5. What is meant by "ecological backlash"? Cite examples.

6. Define and give examples of an "ecological conscience."

## Reflection

1. Discuss and evaluate the following quotation:

> "But all ecological sins come home to roost, and bitterly indeed have the once richly endowed civilizations of the past paid for their rape of nature. In America the long overdue account of our disregard for ecological laws is only now beginning to be presented. The payments must be made, if not cash, then in blood."

2. Evaluate the following quotation:

> "Ecology must become the first, and I shall say, the foremost study of our people--if we really want to carry on."

3. What is the significance of the study of ecology in a world permeated by the values which underlie the "Growth Panic?" Is there a conflict of human values between the two? If so, how should this conflict be resolved? (refer to Lecture #3).

## Redeeming the Environment

### Individual and Group Action

1. The most significant understanding demanded of this generation is an appreciation of the interdependence of all life, of man's place in the chain of life. Form a committee to solicit the professional support of school officials and teachers and to introduce ecological studies

in the school curriculum. Bring the matter to the attention not only of the school authorities but build a public awareness of the fundamental character of this undertaking.

Your committee can be a committee of 100 or 500 but in that case you will have to work through an executive body. Another way of forming an action committee is to keep it small but to set up a list of sponsors or an advisory council.

2. Gather all the books and articles you can assemble on chemical and biological warfare. Here is a direct effort by man to upset natural balances. What ecological risks does man run by pursuing the experimentation, let alone setting the weapons loose?

Find out what advance preparations have been made for the disposal of obsolete concoctions. Are they being neutralized or merely dumped into the sea? Since much of this field is overgrown with security precautions you will have to take into consideration the international ramifications. However, a letter to your congressman might be appropriate in this instance, and a letter to your newspaper, well thought out, may alert your fellow citizens to whatever hazards you discover exist.

3. There is a very new magazine published by the Committee for Environmental Information (a not-for-profit group of eminent nationally known scientists) whose address is 438 North Skinker Boulevard, St. Louis, Missouri. Its aim, according to its editors, is to "provide scientific information relevant to political and social issues, without bias or prejudgment, in the belief that the dissemination of such information is necessary for a democratic society in a technological age." Published ten times yearly, it is a choice source of up-to-date information on selected issues of environmental quality.

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# The Squeeze on Earthly Space

## Resumé

### Purpose

The fight for open space is today a desperate and bitter struggle. This was not always the case. In fact, only a few years ago, there were an average of only 27 people per square mile of land in our nation. Today, we average over 67 people per square mile on the same amount of land. This lecture concerns the current land crisis in this country. The causes, effects and possible solutions of this problem constitute the focus of this lecture.

### Causes and Effects of the Space Problem

Housing and commercial developments, the burgeoning airports, and the corrupt, aggressive and mindless building of roads are the three most voracious consumers of open space. They destroy the beauty of the countryside, upset the harmony of nature and abolish the environment in which man can breathe fresh air, live serenely and be alone with the wonders of nature. The most serious consequence of this senseless destruction of our open spaces has been upon the quality, the real "happiness values" of human existence. The example of the effect of "nature therapy" on the cure of mental disorders dramatically illustrates this point and shows the importance of open space to man's psychic and material needs.

### Possible Solutions

Monorails, the building of airports in our harbors and proposals for different styles of housing are only stop-gap measures which merely scratch the surface of our space problem. The unreflective manner in which we build our roads, houses, industrial complexes and airports is at the heart of our space panic. The only real solution appears to lie in the minds of men and the way we order our values. Thus, for example, when next you are asked to go to the polls and blindly approve five or six millions (or billions) for more roads -- stop, question -- ask why? Is this needed? Why? Shall we continue to give first priority to mobility as a function of the environment? Does nothing else demand consideration?

## Recall

1. What is the space dilemma we now face?

2. Define and cite examples of its major causes.

3. What have been the consequences of our mindless destruction of open space?

4. How can we solve the problem of our lack of open space?

## Reflection

1. Discuss and evaluate the human values that have fostered the destruction of our open space.

2. Does man need open space? Explain your answer. To what uses can it be put?

3. Discuss and evaluate the following quotation:

> "Our 'cures' for congestion thus far are all aspirin for the headaches, while the disease spreads in the nation's body untreated. Aspirin is not to be discounted; it is needed so that the mind is relieved to concentrate on the real cure. But it should never be set forth as the cure."

4. In the long term is the open space problem dependent on population control for solution?

## Redeeming the Environment

### Individual and Group Action

1. Locate the local government agency which has or is most likely to have jurisdiction over the preservation of open space. Get a statement of policy (if there is one) on open space. Is there a formula applied? Call the attention of officials to any inadequacy.

2. Joining with other interested citizens or groups make a survey of obvious areas in your community that are suitable for parks, playgrounds, picnic grounds, or trails, and may be threatened with commercialization. Outline a campaign for preservation of these open spaces.

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## The Great American Thirst

## Résumé

### Purpose

This lecture introduces the problem of the conservation of our water resources. The nature of this problem, its causes and its effects upon man and his environment are discussed in this lecture.

### The Water Crisis: An Overview

The "water crisis" refers to the fact that, as a nation, we do not have an inexhaustible supply of water resources. As a matter of fact, the select Committee on Water Resources of the U. S. Senate estimated that by 1980, we shall have allocated every last drop of water from natural sources. The seriousness of this problem is shown by the examples of the Colorado and Potomac rivers as well as the notice that in the Southwest, especially Texas, it has become necessary to mine water from irreplaceable sources.

Our expanding population with its basic need for water (coupled with its growing utilization of water-using gadgets) our burgeoning industry and our agriculture are the three major consumers of our water supply. These giant water faucets, our tendency to pollute and spoil our water resources, and the fact that a serious lack of rainfall exists in certain parts of our nation constitute the major causes of our water crisis.

The vastness of this problem and its effects upon man and nature are demonstrated by the series of illustrations in the lecture. Once we have recognized the existence and importance of the water crisis, we can begin to devise solutions for it. An analysis of some of the major schemes for solving this problem constitutes the subject of the next lecture.

## Recall

1. What are the three major drains on our water supply?

2. If approximately 70% of the earth is composed of water, why is there a water crisis?

3. Define the "water cycle."

4. Define and illustrate the "mining" of water.

5. What are the causes of our water shortage?

## Reflection

1. Discuss the relationship between the problem of our water resources and the need for the development of an "ecological conscience."

2. Discuss and evaluate the following quotation:

> "Everywhere, pollution and uncared-for-wastes destroy the quality, and therefore the value, of all the water as soon as it falls on the contaminated water sheds. The real trouble now is: we render useless the good water we have."

3. The surface drainage of pesticides and fertilizers from agricultural lands to both underground and surface water supplies builds a toxic threat to ecological balance, and even to human life. How is this situation an outcome of population pressure?

## Redeeming the Environment

### Individual and Group Action

1. In league with fellow citizens or a club to which you belong, arrange with your community's water officials for a tour of the facilities. From interviews, observation, and records, prepare a history of the development of water sources. What is being done now? Is there a plan for the future? Press for consideration of future needs with the preparation of memoranda and resolutions.

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Study Guide
Lecture #7

## Water Witches of the Future

### Resumé

The water problem changes character from region to region. But everywhere it is critical. In Texas and New Mexico fossil water that will never be replenished is being withdrawn. In the crowded Northeast, pollutants are the menace. Thus, Lake Erie which is a septic tank for ten million is degraded as a source of water.

Where will more water come from to satisfy the needs of ever more people? And the needs of a water-hungry industry and a parched agriculture?

Our agricultural position is in large part the exploitation of natural capital. We grow for export crops that we irrigate with irreplaceable water! Our industry is wasteful, up to now not driven by the necessity to save. There are big and little leaks in our domestic water systems and we are profligate.

Plugging up leaky faucets is imperative. But it won't satisfy the astronomical water needs of tomorrow! 650 billion gallons a day by 1980.

Recycling is one answer. Plans have been advanced and blue-printed for salvaging 100 million gallons of drinking water a day from the effluent of New York City.

Desalination, however dramatic, cannot measure up to expectations. We would need 270,000 desalting plants along our shores. If we use nuclear power for the process we must solve the massive radioactive waste problem first. Furthermore, pumping from sea level to where man lives is another obstacle. Australia, a flat continent, finds the pumping costs twice that of desalting.

Working along with the natural water cycle might be less dramatic but more productive. Nurturing our upland watersheds as in the Adirondack Forest Preserve holds promise so long as the pressure of people does not invade those areas, too. Forests, humus and cover hold water back from run-off so that it seeps into aquifers and from there feeds the springs and streams. Israel, too, has done wonders by working with nature. Pakistan (with little forest cover) is faced with crisis for even its reservoirs silt.

The way-out proposals fascinate us--like towing glaciers to our ports. Hydraulic engineering is a stopgap. What we need is a sensitive nurturing of our environment.

## Recall

1. What is fossil water?

2. How do you characterize the water problem of the northeast?

3. Do we have more people than we can supply with water?

4. Can you cite the water demands of agriculture?

5. What are the future demands for water?

6. Is the potential desalting capacity equal to projected water demands?

7. What obstacles stand in the way of a desalting program?

8. Why was the Bolsa Island project cancelled? Is this indicative of trends?

9. Why is pumping such an important factor in a desalinization program?

10. How does the "forever wild" feature of the Adirondack and Catskill Forest Preserve relate to the water supply?

11. How does forest land hold water?

## Reflection

1. What is wrong with growing crops to export by drawing on fossil water and taking the life out of the soil?

2. Can we afford to be squeamish about recycled water? Is this a price we pay for population expansion?

3. Michael Frome writes "The National Forests protect water supplies of hundreds of cities and towns, and furnish irrigation water, flood protection and hydroelectric power." How? (Moment in the Sun, p. 63)

4. "Is John Bardach prophetic? Will it, as he suggests, be the grave lack of water that will at last force upon us regulation of population increase?" (Moment in the Sun, p. 65)

5. Texas, faced with an end to fossil water in the High Plains, has launched a vast reservoir and aqueduct project to meet the impending shortage. Are hydraulic works the answer?

## Redeeming the Environment

### Individual and Group Action

1. Organize a group to map the sources of pollution of the nearest river or lake. In consultation with sanitary engineers of the community work out a technical solution. Now organize a political movement that will create the kind of support the technicians need to be successful. In this connection, your Izaak Walton League (1326 Waukegan Road, Glenview, Illinois 60025) will prove a wonderful ally. They have been fighting water pollution for forty years.

2. Interview a water official on the causes of waste of water. Now investigate the extent of such waste and write a series of letters to the newspaper outlining a solution. Are the rates high enough? Are all users metered? Is inspection tight enough?

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Study Guide
Lecture #8

## Wilderness: Our Wolf Mother

## Resumé

### Purpose

This lecture introduces the problem of the conservation of our wilderness. In conjunction with a discussion as to the effects of the wilderness upon man and his environment, the question as to how critically we still need our wilderness is answered.

### The Wilderness Crisis: An Overview

We are the generation of last decision. The question of whether we want to preserve the remaining 1 1/2 percent of the vast and breath-taking wild beauty which once belonged to America must be answered now. Technology has made it possible to destroy natural wonders as old as mankind in a matter of hours. If we continue to delude ourselves with the dream that money can replace anything, we will soon be awakened by a nightmare, for all that will remain of our natural wonderland will be empty plains and gutted hills. Several non-profit organizations such as the Sierra Club, the Wilderness Society and the National Park Association have been working for the public interest, but they have not always received the support that their efforts deserve. At times, their existence is jeopardized such as in the case of the Sierra Club, which has lost its tax-free status because of its efforts to prevent the Grand Canyon from being dammed. Yet, the Sierra Club continues many programs which beautify America. Its trash removal programs are very successful, and they involve the efforts of over 70,000 interested members. We must demand that the Sierra Club be reinstated as a non-profit organization, and we must begin to support the efforts of the different public interest organizations. We must not be waylaid by the magnetic pull of the economic drive.

The wilderness which once suckled us is not obsolete in today's society. Fortunately, we have not been abandoned by our mother. The wilderness continues to provide water resources, to preserve rare animal species, to link us with our past and to provide a natural drawing card for foreign visitors. If Americans are going "soft" it is because they have lost the "trick of quiet" which reminds men of the bigness outside themselves.

We can never replace what we have destroyed, but we can begin to organize campaigns to preserve what remains of our fragile wilderness. Let us pay heed to the words of Michael Nadel. "The uncommon man needs periodic solitude and tranquillity for his survival. In the wilderness the uncommon man may have his being. Only the common malign the generative voice of silence." Since we live in an age of rising crime rates and suicides, we should not ignore the wilderness which exudes an almost mystical power to heal and to rehabilitate. The Trail Blazer Camps help troubled boys and girls from the city to find new hope. "We do not know of one camper who has been involved in a crime once he or she has spent four weeks at camp."

Scientists hope to surpass the efforts of nature with the development of special hybrids, but their gain is only momentary because the hybrids soon lose their virility and nature never reveals her secret of survival. Recognizing the power of nature, the Food and Agriculture Organization of the United Nations has launched a world-wide campaign to find and to save whatever wild plants remain. Their hunt is intensified by the threat of starvation which lurks in the future. Only those nations with remnants of wilderness can hope to rejuvenate the decaying stock; thus the remaining bits of wilderness must be considered as a "genetic bank."

If "Literature always anticipates life," as Wilde believed in 1890, then much importance must be attached to Stuart Udall's observation that, "... the distinct turndown of our literature from hope to bitterness took place almost at the precise time when the frontier officially came to an end..." Nature, culture and art seem to be inextricably entwined, and the destruction of one foreshadows the destruction of the other elements. An illustration of the various destructive forces which are constantly threatening our remaining wilderness are the sonic booms which have caused rock slides in the Navajo National Monument in Arizona. Each remaining piece of wild beauty on the path of new routes for supersonic jets will suffer more destruction. The fate of the wilderness remains in our hands, our vote, and one chance to decide its fate. There is no recall.

Recall

1. What factors exert the greatest pressure on our wilderness?

2. What are the major contributions of the wilderness which continue to justify its existence?

3. The fate of the old Indian peach is an illustration of what important principle?

4. What do we mean by the term "genetic bank?"

5. How would you answer the old man's question, "What's the matter with folks today?"

6. How does the wilderness contribute to the balance of payments problem?

7. Why is it imperative that any question regarding the fate of the wilderness be carefully considered?

## Reflection

1. Discuss the relationship which exists between nature, art and culture.

2. If National polls shows that 90 percent of the American's questioned want something done about saving land, why does our wilderness continue to be so swiftly destroyed?

3. Discuss the validity of the following quotation of Bernard DeVoto.

> For a nation that grows more metropolitan and industrialized every year, the experience of solitude, even the simple fact of quiet, has become inestimable ...

4. "The more urban our life has become, and the more frantic with technological change, the sicker and more embittered our literature, and I believe, our people, have become.." Stuart Udall.

Do you agree with Stuart Udall's observation?

5. Do you think that the "Multiple Use" theory provides one possible solution to the wilderness problem? Can wilderness be "handled?"

## Redeeming the Environment

### Individual and Group Action

1. Get in touch with The Wilderness Society, 729 Fifteenth Street, N. W., Washington, D. C., 2000 for an investigative assignment in their continuing effort to delineate the boundaries of wilderness areas under the Wilderness Act. You may set up a rewarding relationship. Their magazine, The Living Wilderness, can keep you abreast of happenings.

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## Resumé

### Purpose

This lecture considers the problem of the destruction of our wilderness. In this lecture, the nature of this problem, its causes and effects upon man and his environment, and programs for preserving our waning wilderness are discussed.

### The Wilderness Crisis: An Overview

Man's apparently insatiable thirst for profit has led to a critical situation whereby the American wilderness is making its last stand for survival. Men must recognize and accept the fact that "Wilderness made man, but he cannot make it. He can only spare it." The indiscriminate destruction of our wilderness is illustrated by the temporarily defeated proposal to build two hydroelectric dams in one of our choicest remnants, The Grand Canyon. Efforts to preserve our wilderness are thwarted by profit-oriented groups which often work in conjunction with the government perpetuating mammoth swindles on the American public such as the formation of National Redwood Park. The remaining "superlative" old redwoods will be destroyed unless the 2,400 acres still to be purchased are no longer designated to be a "buffer brushland." The destructive trend can be reversed by making ourselves heard through constituency feedback. The Great Smokies were rescued from being slashed in two by a superhighway, through the efforts of concerned individuals who provided constituency feedback. The "preservation ethic" must become the fundamental ethic of man.

At best, a tenuous relationship exists between the preservation of the wilderness and the civilized animal. Lavish investments in headache remedies and cigarettes will not provide the needed balm for our tension-ridden, money oriented society. As we continue to insist upon deciding what the future generation will have to see, to marvel at, to go to for healing and solitude, we usurp a power better denied to man. For example, what if we continue the wanton destruction of our wild ducks at our present roller coaster pace, at which 1968 surveys showed teal down 40 percent?

Our children will have little left to console themselves except unending strips of concrete, the remnants of outdated highways. As we carve up the remaining 300,000 acres of Big Thicket of Texas at the phenomenal rate of 50 acres per day, it is not long until the Big Thicket, once comprising 315 million acres of luxuriant forest, will only exist as a paragraph in a history book. Many of our natural wonderlands are being sacrificed to our distorted values.

### The National Park System

Thirty-three unique primitive parks and eighty-two national monuments suggest that the sun does shine on our National Park System. Although Americans still laud the men who dreamed up the first of all of these, Yellowstone, in 1872, future generations will hardly look upon us with gratitude as we open the gates of the parks to destructive enterprises. The greatest threat seems to be posed by the uncontrolled hoards of people who seek to love our parks to death. As these hundred million visitors and their automobiles descend on our parks, they inflict multiple injuries. Efforts to accommodate them raises the question of how long our parks can survive. Severe rationing and mounting fees provide possible solutions for the preservation of our rare scenery. Men's vacation movements will have to be regulated and rationed as men's major worries become those of finding open space and good drinking water.

### The Plight of the Redwoods

The American people are the victims of a giant hoax. The original 2,000,000 acres of "superlative" redwood trees have as of 1969, been reduced to 110,000 acres and few trees are safe from the blow of the ax. The new 58,000 acre National Redwood Park comprises less than 1 1/2 percent of the original redwood stands and although it is designated as a major park, it is meager in size when compared to other national parks like nearby Yosemite which is 760,000 acres. The American people must fight back to preserve their fast disappearing wilderness.

### Recall

1. Define and illustrate what we mean by the "preservation ethic."

2. Considering the crisis in beauty, what is the most effective weapon the American people possess to fight against private interests which influence government policy?

3. Who owns the Big Thicket and how does this influence its existence?

4. What factors have contributed to the flourishing of Isle Royale in Lake Superior while the future of other national parks is threatened?

5. What are the two primary interest groups sapping the strength of our park system?

6. What is the primary cause for the eventual necessity to ration and regulate men's activities?

7. Who is responsible for the destruction of the redwood trees? Are you?

## Reflection

1. Discuss why a conflict exists between a civilized animal and the wilderness.

2. Discuss the relevance of the quotation, "As vultures gather the end is near" in relation to the problem of the preservation of our ravished wilderness.

3. Discuss at least two of the irritations imposed upon us by our too-large population.

4. Accepting the present condition of our wilderness, what recommendations would you suggest.

5. Discuss and evaluate the following quotation:

> The point is that, all our new resolutions of knocking the dollar from its throne to the contrary, when the individual decision comes up, we have not been strong enough to "kick" our profit addiction. We continue in the obscene old routine as, bit by bit, our environment shrinks and is further scarred under the rapacity of our primitive greed.

## Redeeming the Environment

### Individual and Group Action

1. Study the details of the new Redwood National Park and

take note of the gaps still to be filled.* With this background make an inventory of redwood products being sold in your community. Is it worthy of a boycott? How would you organize a boycott? What support can you get from merchants? From the media? What forces are you up against?

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* Write Save the Redwoods League, 114 Sansome Street, San Francisco, California, 94104, for Spring Bulletin, 1969 and to Citizens for a Redwood National Park, Box 713, Arcata, California, for information.

## When Man Plays God

### Resume

Man is predacious. But he is careful to concoct a reason for the extermination campaigns he launches for any creature. Even the pigeon was indicted as a germ carrier to justify its poisoning.

America was swarming with wildlife when European man arrived. Some few species had been exterminated by primitive man and there had been a toll of species by natural evolution. But modern man has by slaughter of bird, beast, reptile and the destruction of their habitats eliminated 50 species during the brief history of this nation. It is a dark and bloody record.

One of these victims of man's progress was the heath grouse of which the last specimen burned in a brush fire on Martha's Vineyard in 1916. What kind of a crime is it to drive one species after another to extinction with 78 now on the brink? It certainly doesn't make us feel very proud. It carries barbaric overtones.

Our conscience and our ecological common sense is beginning to tell. We are making tremendous efforts to save the whooping crane. Why should we?

There are bread and butter reasons. Each species has a niche in a web of life of which we, too, are a part. Despite this truth it is gravely doubtful that every creature must justify its existence in terms of man's welfare.

All of these threatened species have sojourned here much, much longer than man. The alligator is a living fossil. He has lived through natural calamities by the score over his 150 million years of existence. Only man -- or is it woman? --- now challenges the right of alligators to exist. The exploitation of the alligator's hide constitutes a vested interest.

So it is with the sea otter. It was hunted to near extinction for its silky fur. And now surviving under legal protection it contests with man for part of its food supply, the abalone. The abalone divers are better organized than the sea otters and the otter has no vote.

Greed has pushed the blue whale to extinction too.

The coyote competes rather directly with the sheep raisers. The odds are uneven. Though he can howl the coyote cannot do it in the halls of Congress. And so the infamous and very cruel official poisoning program goes on. Whole chains of life are broken by the 1080 all because the coyote attacks a sick lamb on occasion. The rodent problem is aggravated.

And so it is with all our endangered species. We exploit them too greedily, or we begrudge them their habitat, and so we push them to the brink. We thus impoverish ourselves by denying ourselves their company. Moreover, without predators, without scavengers, without birds we would soon be overwhelmed by rodents, insects and rot. The whole ecosystem is so intricate it is dangerous in our ignorance to play at being God.

## Recall

1. Was primitive man an exterminator too? What is his record?

2. How serious is the depletion of species by modern man? What is the box score?

3. What is the story of the black heath hen?

4. Is it possible to relate the usefulness of most species to man's welfare? Explain.

5. What is the tale of the alligator and why is he in such jeopardy?

6. What does the account of the sea otter tell us about the competition with man for survival?

7. Why is the coyote under attack by man? Does the battle make ecological sense?

8. Why is the peregrine falcon disappearing all around the world?

## Reflection

1. How do you distinguish between the ecological consequences of evolutionary extinction of species and man-caused extermination?

2. Is Peter Farb right when he says: "Surely future millennia will list as a major natural disaster the establishment in North America of European man."

3. Do you see any shame attached to our history of extermination? In what sense is it ecologically catastrophic?

4. Is our effort on behalf of the whooping crane something to be proud of? Why or why not?

5. "We must decide," said former Secretary Udall, "whether we want to live securely at the top of a broad based pyramid of life or perched precariously on a slender column whose supports have been clipped and hacked and blasted and bulldozed away?" What has this observation to do with pushing species into oblivion?

## Redeeming the Environment

### Individual and Group Action

1. You can keep your information on the fate of wildlife up to date by associating yourself with Defenders of Wildlife, 731 Dupont Circle Building, Washington, D. C., 20036. Regularly you will be advised where in the policy making process you can make your influence felt.

2. Does your community have a sanctuary for birds and animals? Find out how it is governed and administered and where there is a need for volunteer help in management.

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## Parade of the Doomed

### Resumé

We can, if we are of good will and understanding, do something about our dwindling wildlife. But only if our concern is genuine.

Take the polar bear. As long as we stand aside while so-called sportsmen kill them at the rate of 1400 a year, and so long as we condone the sale of wall-to-wall polar bear carpeting, the cause is lost. We need to support the International Union for the Conservation of Nature which is making a world-wide effort on behalf of the polar bear.

Or take the Tule Elk. The history of its persecution is sordid. Even yet the defense of this gentle, red-coated dwarf species is an uphill battle against hunters, ranchers and developers of the lovely Owens Valley. Against these odds only sensitive public opinion can save the remaining 246 Tule Elk. There is a fight every year to keep hunters away, spearheaded by the Committee for the Preservation of the Tule Elk, 5502 Markland Drive, Los Angeles, California 90022.

Wildlife is being crushed out the world over. The tigers of India are down to 2,800 from 40,000 fifty years ago. And still the slaughter persists. On what basis do we veto the arrangement that put them on earth with us?

Incredibly, amongst the 78 species threatened with extinction in the United States, is the American symbol, the white or so-called Bald Eagle. He is a victim of poison, bullets, and bulldozers.

Perhaps less dramatic but nonetheless sorrowful is the plight of the mourning dove who is hunted in many states during a critical part of its nesting season. Champions of this plaintive bird are many but outstanding is Dr. Henry Weber, a former naval surgeon of La Quinta, California (Box 227). But mobilizing support against predatory interests is difficult.

Most of us are now aware of what is befalling our wildlife. We live in a lunk-headed euphoria of "inexhaustible" natural bounty. Once we awake, we can support a reasonable control of hunting, the control of poisons, and habitat preservation.

The example of the Horicon Marsh of Wisconsin is a good one. After a series of devasting disappointments "Curly" Radke saw this project of restoring the swamp through 16 sessions of the legislature. His victory is now celebrated annually by the honking of returning geese and the din of gossiping flocks of ducks who have come back to live in Horicon Marsh. Radke's success can be an example to us all.

We could support the Endangered Species Act and boycott purchase of the skins of rare species. We need not aid the traffic in dwindling tropical species of birds. We don't have to eat sea-turtle soup.

We can recognize the collateral right of other creatures to their niches in the web of life. It would be well for us if we did.

Recall

1. What threatens the polar bear?

2. What is the Tule Elk story?

3. Why is it necessary to organize around the defense of a species?

4. How many Tule Elk are left? Why is the number too low for assured survival?

5. Are the numbers of Tigers critical for the species?

6. Why is the American White Eagle in jeopardy?

7. Why does the mourning dove need consideration?

8. Why must we prod our bureaucrats where the situation calls for help to a species?

9. What lesson do we learn from the Horicon Marsh episode?

10. What did President Johnson mean by "constituent feedback?"

Reflection

1. Philosophically, is there reason to be concerned over the fate of a species such as the polar bear?

2. Is the profligacy of wall-to-wall polar bear carpeting in any way a social offense?

3. If we are short of room for ourselves ought we to set aside a small valley for the Tule Elk?

4. Ought the tiger to be exterminated? Why or why not?

5. How do you account for the sudden surge of numbers of species under threat of extinction?

6. Should the marketing of the hides of endangered species or of live specimens be prohibited? Is this an effective social regulation (according to the editors of the *Christian Science Monitor*)?

7. Is the preservation of species ecologically sound?

## Redeeming the Environment

### Individual and Group Action

1. Natural areas are identified, acquired, and administered for the public benefit by the Nature Conservancy, 1522 K. St., N. W., Washington,D. C., 20005, which has chapters throughout the country. Investigate its works in your area in saving habitat for species. Get in touch with the local officers; they are in dire need of volunteers in their educational and management tasks.

2. Form a group, or interest one already formed, to control the purchase of pelts and pets which are rare or endangered. Launch an educational program -- for school, public and merchants -- to discourage buying the products of species whose survival is threatened, such as alligators or the leopard.

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## Resumé

### Purpose

We have experienced an historically unprecedented movement of people into our cities. This aggravates the environmental problems especially for the least advantaged part of the population.

Cities in the past were harmoniously related to the countryside about them. Then inhabitants did not lose their contact with nature. Man's biological adaptation is being jeopardized by his urban, artificial surroundings. This is but one argument for bringing open space to the city, and green belts to its environs.

### Key to Future

There are many variations of open space programs reflecting the ingenuity of citizens. The vital key, we are told, is beautification -- what is pleasing and healing for the human animal. Yet our cities are given over to the tensions of ugliness and squalor. Even in man-made aspects such as buildings, monumentality -- impressive beauty -- is rare.

### Proposed "New Cities"

The "new city" movement, a wonder technologically, is a barren proposal, profligate of open space and pursuing a soulless cement and steel solution to urban woes.

The essence, however, lies in the neighborhood concept which is closely related to physical environment. It's not only an urban problem; as a people we fall short everywhere in our commitment to beauty and to the amenities that raise "existence" into the category of joyful "living."

In the countryside we have some natural beauty by default; we haven't yet gotten around to destroying it. In the cities it takes conscious effort to create and preserve such touches of nature. It will take much more insistence if the population bomb continues to explode and we are faced with what the planner Doxiados calls "Ecumenopolis" -- a world plastered over with one continuous city. In such a world, people masses do not flourish; they fester. Indeed,nature will eliminate the human race long before this nightmare can occur. Hence, open space is not an amenity but a survival necessity.

## Recall

1. How does the flow of people to our cities compare with the population movements of history?

2. What distinguishes the city of today, from that of a century ago?

3. Is there any scientific basis for assuming you cannot divorce man from nature?

4. What priority do we, as an urban society, give beauty (according to Philip Johnson, the architect)?

5. How can the physical structure of the city contribute to its sense of community?

6. What is the picture you have of Ecumenopolis?

## Reflection

1. Ought public policy discourage migrations? Does the strange new environment contribute to its abuse by migrants?

2. Does a city in a megalopolis lack provision for amenities? What is the impact of such lack on the dignity of men?

3. Do the environmental evils truly concentrate in the ghettoes? Is their abatement therefore a matter of social justice?

4. Does the filth that surrounds us burden our vocabulary and so our literature with earth-laden terms too heavy for spiritual communication?

5. Do we really agree that beauty deserves no priority. Ought population be so controlled that we could give it a priority? When you have to ask these questions has the society been overbreeding?

6. Is the social worker right who regards the purchase of a Redwood National Park as a levy on the slum? What rationale can we apply to meet this argument? Is it acceptable?

7. Does a national commitment to a policy of reverence for God's creation or the belief in compassion buttress these qualities of life throughout the society?

8. "A town is saved, not more by the righteous men in it than by the woods and swamps that surround it." Is this observation valid?

## Redeeming the Environment

### Individual and Group Action

1. In cooperation with the local school system and the Parent-Teachers Association, locate, map, describe, and champion the preservation of landmarks for their historical or architectural value.

What measures, what ordinances, and what programs are needed to carry out your purposes?

2. Investigate (through a Natural Beauty Commission, if your state has one) the possibility of a sign ordinance. Take steps to prepare your community for such a move to remove the clutter of competitive signs and to standardize their design and to restrict their location. Local Chambers of Commerce are now quite likely to give assistance in such matters.

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Study Guide
Lecture #13

## Strangulation by Freeway

### Resumé

Highways and freeways bisect our countryside, our communities and our lives. Already the builders have cement-plated an area equal to that of entire New England, and created a "waffle grid" countryside.

The great evil of roads is that they do violence to the sociological integrity -- the life patterns of people -- and physical ecology -- the life forms of the land -- of the areas they invade. It is total commitment to a single priority -- mobility -- to "getting there." It is subordination to the authority of engineers in social matters of which they are usually not only ignorant, but irresponsibly destructive.

The examples are legion of the defenders of historic, human and natural values battling the builders. The focal point of this destructive force is Washington, D. C. This seems inevitable for a movement buttressed by such political money and muscle. Anyway, Washington, D. C. is now on the drawing board, hereinafter referred to as the carving board. Fantastic plans are afoot to destroy the river fronts, cut a swath through the parks, and desecrate the historic Georgetown section, all with a madman's maze of arterials, bridges and cloverleaves. Much of it is incredible as, for example, the spectacular proposal for gutting out the Tidal Basin.

Road building has now become an end in itself; it is an American mania. The terror in it is the way it feeds on its own power and strangles public voice and decision-making.

Cities are becoming little more than the hubs of transportation wheels. Neighborhoods are bifurcated, impenetrable walls segment the business and social life of the city. Look at Nashville, the Athens of the South, where the black community is protesting Interstate 40.

Roads are attracted by the cheapest routes -- helpless places like public parks and the neighborhoods of the poor and uninfluential. Their construction aggravates the problem of the environment and the racial issues that plague us.

The solution seems to be in the direction of a crash movement for mass urban transportation. Powerful voices are already crying out against the monopolization and poisoning of city centers by the automobile. Many now call for a complete ban in the heart city.

The important thing is that we begin to do what we do with understanding and purpose, not mindlessly as heretofore. It is imperative indeed that we see a road for what it is, with permanent liabilities, grievous ones, attached to it. It must not be looked at as a job cornucopia, a community bonanza, a gravy train, and a federal fund bleeder. There are better ways to create jobs than by transforming our countryside into a cement-plated desert.

Indeed, has anyone thought that by returning our sewer-rivers to their once clean and sparkling condition, great new arteries of travel would be opened? And the "Sunday drivers" might relax in the deck chairs of pleasure steamers rather than dodge through the gassy traffic of today's accident prone roadways? It is a vision worth pursuing.

Recall

1. In what anti-social directions does excessive road building take us?

2. Why can we not leave the construction of a road to highway engineers alone?

3. Why is the road builder driven to invade parks and poor districts?

4. What are the plans (temporarily quashed) for roads and freeways in the capital city of Washington, D. C.?

5. How do the numerous open spaces affect the wild planning of the freeway builders in Washington, D. C.?

6. What is the proposal for the disposition of the Highway Trust Fund?

7. How would you characterize the view of Clevelanders toward mass transit? Is it constructive or not?

8. Do recent elections indicate support or opposition to bond issues for rapid transit systems in major cities? What conclusions do you draw?

9. Is there any reason to believe that downtowns of city centers will be off-limits to automobiles in the near future?

## Reflection

1. "Highway planners become highwaymen stealing the integrity of the community." In what sense is this true?

2. Does the public character of the road-building enterprise push it in the direction of political organization? Can you account for its muscle as a lobbying force?

3. Can you conceive of giving a bird sanctuary priority over a road plan?

4. Should there be local and decentralized review and community decision on highway proposals that affect the lives of people?

5. Is the neighborhood of such intrinsic value as to warrant avoiding it or by-passing it with freeways?

6. A federal official is quoted as saying, "It isn't in the cards for Washington to mount a massive effort to solve urban problems." Is not the Federal Government through its road program creating some of those problems? What do you conclude?

## Redeeming the Environment

### Individual and Group Action

1. Every new road and highway must now be openly challenged for its effect on the environment. Every arterial or cloverleaf must be questioned not because there may be economic doubt but because there undoubtedly is environmental damage. There is a secrecy about road plans. For fear of speculation and opposition preliminary proposals are seldom broached publicly. Road engineers are notoriously myopic about the social and environmental consequences of their projects. However, the recent battles over arterials and cloverleaf intersections have encouraged more awareness.

Organize a committee to wait on your planning board to ascertain what role they play in the road development within their jurisdiction. Draft the schedule of steps that are followed in deliberations on a new road. When are the findings opened to public scrutiny? When are the hearings provided? Do you regard the process as an open, impartial and democratic one? Would an ombudsman serve a useful purpose here? What reform grows out of your investigation? How will you gain attention for it?

2. Take your same committee and convert it into a watchdog committee. Keep *ahead* on the secret projects your road planners and district officials have under wraps. Take over the championship of the environment. Which proposal is the least destructive of higher values? Which is obviously an attempt to use up available government funds in pork-barreling?

Review the next freeway or cloverleaf proposal. Is it necessary? Take part in the process of review. Attend the hearings. Participate in them.

Also, push counter proposals for mass transportation. When you consider the cost of such modern, convenient mass transportation, remember that almost any price will be preferable to the waffle-grid landscape we face if such transportation is not quickly adopted, and if the highway lobby is permitted free rein much longer. Consult with local planning boards; are they ecologically oriented? Confront your state and local highway commissioners and your legislative committees which authorize these projects.

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## Outfalls May Be Our Downfall

### Resumé

Fish kills are indicative of the toxic state of our lakes and streams. Our creeks and rivers suffer from cement washings, industrial poisons, petroleum runoff, chemical spills. Annually the Federal Government publishes a requiem called "Fish Kills" and the toll (which is bound to be incomplete) runs to tens of millions. If fish can't live there the waters are useless, if not actually hazardous, to man.

Once they were gay centers of recreation; we now turn our backs on the murky, pestilent rivers. Many still living remember the Hudson for its gala outings. Now, neither it, nor any other major river, is more than a degraded sewer!

One wonders whether the images one carries in his mind that together constitute patriotism are not of pleasant vistas now tainted by pollution. One can ask whether the eroding of the one is not associated with the corrosion of the other.

What youngster, for instance, can retain a proud vision of his great country when he knows the putrid facts about the Great Lakes? Lake Erie is, as has often been reported, irredeemably defiled. One after another of the Great Lakes -- victims of the insults of industry, commerce, agriculture and municipalities --- is going the way of Lake Erie. The lamprey was introduced as a result of the introduction of international shipping. The ecology was distorted. The alewives went out of control. Now salmon have been introduced to restore the balance. Even the salmon, however, are not propagating in the DDT tainted waters of Lake Michigan.

Worst of all a great potential water source is lost to pollution. The lakes are becoming vats of chemical solutions difficult if not impossible to treat. Latest news is that even cold, deep Lake Superior is now suffering from contamination of the tailings of the taconite industry.

Waste treatment is not magic. Primary treatment removes only the solids; it is 50 percent effective. Secondary treatment substracts another 30 percent of the contaminants. At best with tertiary processing 90 percent to 95 percent of the wastes are eliminated.

Indeed, some critical chemicals can be handled only by the human kidney!

We have marketed products harmful to the environment before we had weighed the consequences. Non-degradable detergents are one example.

The dying of the beautiful Milwaukee River was something I witnessed from childhood.

Have we become indifferent to our natural surroundings because we are now urbanized? Or was it the callousness built into our pioneer background that doomed them?

There are some few fine things happening such as the New Jersey $100 million disposal program, the Seattle clean-up of Lake Washington, new break-throughs in the science of sewage treatment. Yet all we are doing is so miniscule beside the vastness of the problem of pollution.

## Recall

1. What are some of the causes of fish kills?

2. Of what ecological significance are the accounts of fish kills?

3. How complete is the loss of our rivers for recreational purposes?

4. What is the condition of Lake Erie? Is it remediable?

5. Why are the Great Lakes deteriorating?

6. Are there technological limitations on the purification of sewage?

7. How effective are primary and secondary treatment of sewage? Tertiary?

8. Were detergents prematurely marketed?

9. What is the hope in the story of cannibalistic bacteria processes of waste treatment?

## Reflection

1. Is it possible that love of country is related in

great part to the happiness we associate with its physical attractiveness?

2. Does it make economic sense to pollute the major source of water for our thirsty future?

3. Is it fair for a generation of people to pay only part of the cost of its production, charging much of it against natural capital? Should the treatment of wastes be a cost of production? How would you bring this about?

4. How does the "least cost principle" in management cause the environment to suffer? Is this principle peculiar to the free enterprise system?

5. Is it possible to establish an optimum population figure on the basis of the capacity of the environment to absorb human wastes?

6. Does the urbanization of society dull the recognition of living in harmony with our natural surroundings?

7. From where comes the right to dump wastes into a river? Does society have the right or the power to set standards of water quality that foreclose new industries that historically pollute?

## Redeeming the Environment

### Individual and Group Action

1. Each stream is classified as to water quality. Find the authority charged with this task locally. Is it the State Health Department? The Water Control Board? The County Health Agency?

Obtain the data on the pollution of these streams, creeks in your vicinity. Send task forces out to look them over. Many of these bodies of water have far greater potential than to be used as carriers of human and factory waste. As a civilization we have turned our backs on our sewage loaded streams. But by so doing we have cheated ourselves and our children of rare sources of health, enjoyment and relaxation.

Now make a list of the streams and lakes which have greatest potential, and pinpoint clearly the sources and amounts of contamination. Get some adverse publicity on them in the papers. Interest your groups in cleaning up the streams not only for fishing, but for swimming and canoeing. See that your schools and teachers help in the campaign. If you have an Izaak Walton League, you already have a staunch and valuable ally, with the entire national organization behind you. They will guide you in procedures. Your local assemblymen and legislators will respond with governmental help.

Most of all, get universal citizen cooperation. Get rid of the litter and clean up the stream banks as a starter, with proper publicity. At the same time, go after the polluters -- individual septic tanks, municipalities or industries. There are laws against such contamination; more can be passed. Why deprive ourselves of the thrills and pleasures of water sports any longer, in a nation with so many streams close at hand?

2. Most of our lakes and beaches are slightly -- some very badly -- polluted. Form a watchdog patrol here too. Obtain the factual information on the state of the beaches. If there is no such survey, demand one of the public health officials.

Now discover the sources of contamination? Is it the septic tanks of cottagers? Pleasure boats without holding tanks? Seepages from factories? Town sewage seepage? Mining?

Consult with your public health authorities and muster support to begin eliminating the contamination sources, one by one. There is an answer to every source of contamination. We who are destroying our lakes can also redeem them through effort and investment. If the surface water of the continent is not worth redeeming, then the country is not worth redeeming. In fact, it is lost.

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Study Guide
Lecture #15

## Cold Statistics and Hot Pollution

### Resumé

If orders for the construction of nuclear reactors are an index, then we are faced with a future where nuclear power is a major feature. Indeed, the development has been hailed in some scientific corners as the panacea for the food and water problems of an ever-increasing population.

Yet despite prevailing optimism not much headway has been registered in the disposal of radioactive wastes. Ninety million gallons of this lethal brew are stored in under ground tanks and will be dangerous for 500 to 600 years.

But aside from the unsolved issue of radioactive wastes, a nuclear future brings with it aggravated problems of thermal pollution. All power plants require cooling water; all heat the discharge water. But where a conventional plant may heat water a few degrees, a nuclear plant will register as much as 26 degrees increase in temperature. This is like thrusting the habitat from the temperate into the tropical zone. Most forms of life will expire under the stress.

The threat of accidents is an appalling possibility particularly with the untested introduction of fast breeder reactors. Our thinking on atomic matters is thoroughly controlled by the brainwashing activities of the Atomic Energy Commission.

Atomic development is the wildfire on the crazily expanding energy front. The electric utility industry is about to build 700 nuclear power plants of 1,000,000 kw each. The individual plants are getting larger.

These factors challenge the landscape in new ways. The nuclear plants require pumped storage plants, vast acreage, extensive transmission lines. But most serious is the heat pollution. More than half of all the water we use for every other purpose today will be needed for cooling purposes in 1980. The biocidal hot water threatens to kill the life of our rivers and bays. We are proceeding in ignorance of ecological consequences, as always.

Even cooling towers are scarcely the answer since they are costly, gargantuan, and they create unfortunate side effects such as ice and fog.

Nuclear plants are already injecting small amounts of radioactivity into the environment, air and water. The theory of dilution breaks down as the number of nuclear plants increases and "threshold" exposure is needed. Yet, officialdom continues to belittle the fears of those who are disturbed by the continuing radioactive pollution. The distress that might have been dismissed when nuclear energy was experimental, now gains added meaning as nuclear power plants in great number become operational.

Furthermore, what evidence we have points to the fact that nature concentrates radioactive isotopes more effectively than man dilutes them. We may, therefore, be following a path of no return, a path of irredeemable contamination.

Long ago we should have been working on alternative sources of power. We might still start.

## Recall

1. How are we disposing of high level radioactive wastes?

2. How far has radioactive contamination proceeded in the world of living things?

3. What is thermal pollution? What ecological consequences does it have?

4. Is the possibility of an atomic accident foreclosed?

5. Writes Dr. Novick: "There has been very little public discussion of the risks of nuclear power." Can you substantiate this? What risk does it impose?

6. What are the propositions for the generation of energy?

7. What are the ecological implications in terms of space of constructing ever larger nuclear power plants?

8. Why does a nuclear plant need greater quantities of cooling water than a conventional plant? How much more?

9. What do we mean by "biocidal hot water?"

10. Who in the government was charged with regulation of thermal pollution? Why was this looked upon as a "snafu"?

11. What are some of the limitations of cooling towers for nuclear power plants?

12. How does nature counteract or annul the efforts of man to dispose of radioactivity by dispersion?

13. What is the danger of exposure to small amounts of radioactivity?

## Reflection

1. What social advantage is there in heralding the capacity of nuclear power to sustain a much larger world population?

2. "The atomic industry has a better safety record than most other industries." How does this repeated assertion conceal the danger of a major accident?

3. The government has had to subsidize the insurance of nuclear power plants against accident. How does this public policy affect the possibility of catastrophe?

4. There are two theories concerning the monitored release of radioactivity: dilution and threshold exposure. Are these theories valid?

5. Ought we to risk exposure because we have no proof of the long term adverse consequences? Or, by reason of our lack of information, ought we to proceed with caution?

6. Do you agree with the subcommittee on Science, Research, and Development that "We are turning our world into something uninhabitable?" With respect to electric power generation how can we reverse the trends?

## Redeeming the Environment

### Individual and Group Action

1. With the cooperation of your state representative in your legislature, discover whether your state has any regulations concerning thermal pollution. If there are none, prevail on your lawmaker to see that something is done. Help him with the specifications. If there is a set of rules evaluate them for their adequacy.

2. Near almost every community there is projected a nuclear power plant to meet the growing demands for energy. In many instances (the St. Croix in Wisconsin, Minnesota, the Connecticut, Biscayne Bay) local protest groups have been created to protect the environment against radioactive and

thermal abuse. Their purpose is to eliminate or minimize the threat. Help in forming or locating such a group can be obtained from the Citizens' Committee for Protection of the Environment, 77 Homewood Avenue, Allendale, New Jersey.

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## Midnight at Noon

### Resumé

Soot, the symbol of air pollution, will triple by the year 2000. So will all the other air pollutants. It is a powerful threat to life. By the year 1975, the pollution count may become a significant part of the daily forecast.

There are experts who anticipate a major crisis. A smog enshrouded city may choke as many as 50,000 inhabitants to death. Indeed, it is asserted that if we do nothing about the pollution problem we shall drift into a situation where the large cities become uninhabitable within seven to ten years.

Air pollution is causing, according to both British and American findings, an assortment of illness, some symptomatic of grave sickness such as emphysema, lung cancer, bronchitis and other respiratory diseases.

The statistics on air pollutants evidence a lethal situation. Excess deaths in many of our metropolises are already attributable to air pollution. We are short of fresh air.

Air pollution affects not only the health of people but the welfare of livestock. Wildlife in particular is vulnerable because of the introduction of confusing smells.

There is, however, a crop loss of great proportions -- 500 million annually: spinach, tobacco, citrus groves, orchids, and many other crops fall to the blight of air pollutants. All succulents are victims. It is a national rather than an urban problem. Pine forests 90 miles from urban centers are shrivelling. The San Bernardino National Forest is a casualty of Los Angeles smog. Timber is stunted in the Great Lakes region. The citrus groves of Florida are sickening at the edges.

These are warnings of what is happening to our world. Where once the desolation was limited to the vicinity of smelters it is now spreading. Nitrogen oxides from automobiles,and ozone can wipe out many plants. When that happens our watersheds dry up and floods rip away our soil. Already, says R. St.Barbe Baker, the earth has lost one-third of its plant cover. This is critical -- like a man losing one-third of his skin.

The ecosystem may be flying apart. In its death it may wear the shroud of air pollution.

## Recall

1. "There is little doubt that living in a polluted area is like taking a few years off your life." Can you substantiate this observation by Dr. Stephen Ayres?

2. How much more air pollution is projected for the year 2000?

3. What do airline pilots report about the level of pollution and impaired visibility?

4. How much air do you require a day?

5. What do London investigations show about the effect of carbon monoxide concentration on the health and well-being of workers in the shopping districts?

6. What proof is there that New York City air is lethal?

7. Do the Staten Island experiments show a correlation between air pollution and respiratory cancer?

8. In what way has Dr. Vincent Schaefer proved that air pollution is a national if not universal problem?

9. What is the cause of fluorosis poisoning of the air and how does it affect livestock?

10. Is plant life susceptible to damage by air pollution? Specify.

11. What is the consequence of the destruction by air pollution of a large part of the vegetation covering the earth?

12. Is radioactivity a form of air pollution? What evidence is given in _Moment in the Sun_, p. 117.

## Reflection

1. Is the prophecy that we are turning our cities "into ghettos of grime" exaggerated or not?

2. Is it true that awareness of the problem of air pollution awaits a calamity?

3. Are we moving toward the situation where our cities become uninhabitable?

4. What do you conclude from the discovery that air pollution affects the entire ecology of our environment?

5. What is the lesson we learn from the effects of pollution on the San Bernardino National Forest and the Cumberland? Does it add a dimension to the problem? How?

6. Could the sickening of our plant life from air pollution be more dangerous to man than the direct effects?

7. What warnings emanate from the surroundings of a smelter?

8. Why is the destruction of the ecosystem a matter of such grave import?

9. What is the significance of the title of the chapter on air pollution, "38 Cigarettes a Day" in *Moment in the Sun*, p. 111?

## Redeeming the Environment

### Individual and Group Action

1. With other interested persons form an air pollution vigilante group. Acquaint yourself thoroughly with the anti-pollution laws and with the agencies, state and local, that enforce them. Prod the authorities both to improve the quality of their rules and the measure of their enforcement. Smoke offenders are usually organized in industrial associations. Your vigilante group will bolster the public official who is trying to break through the crust of apathy in the public interest. Attack court delays for offenders and don't let down your attack until the skies clear.

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## Air Rationing -- The New Age

### Resumé

Besides the destruction of our ecosystem -- and us with it -- foul air is a threat to man directly. With our increasing numbers and production we have ever more pollution of our air. The need for fresh air raises the issue whether the right to breathe has a higher priority than the right to pollute.

Oxygen is kept at just 20 percent through the green plant wizardry, the carbon dioxide-oxygen cycle. Now man has interfered. He has stripped the green forest mantle from much of the earth. He is over-tapping the eon-old fossil fuel storage and over-burning the oxygen. He is even upsetting the oxygen manufacturing process of the tiny plant cells of the sea by saturating everything in herbicides which flood out to sea to attack the diatoms.

If we confined our use of oxygen to what we breathe, our supply would look adequate. But we use it up profligately. The two Big Dragons with the most deadly breath are, of course, the smokestacks and the automobile.

We are passing laws vigorously and there is some enforcement. But the projections for air pollution in the future are still appalling. We have had the federal Clean Air Act of 1963 and the Air Quality Act of 1967. But even in our crisis we have built into our legislation one delay after another. So far the Federal Government has not done well policing its own stacks. And industry calls for more and more time-killing research.

Control of air pollution is expensive, especially if maximal purification is sought. There is an application of the law of diminishing returns. The issue is caught up in a jurisdictional dispute between Federal and State authority as well.

The control of the pollution of the internal combustion engine is a major headache. Los Angeles experience dates from 1963. The emission control devices are not a howling success. The burden of pollutants grows. The devices are difficult to keep serviceable. They deal with only one kind of pollutant and may indeed add to the problem of nitrogen oxides and sulfur oxides.

The smokestack symbolizes the "right" to pollute, and smokestack control is weighed against economic necessity rather than on public priority. There are, we are told, demand-and-supply schedules for clean air. Smokestack control stops at the point where it doesn't pay economically to clean up the air for breathing.

What are we going to do? We'll have to find some alternatives for our much-loved monster, the gasoline-driven automobile. We must increase our effort at emission control. Meanwhile autos and smokestacks challenge our right to breathe; our habitat is defiled; but our production of pollutants goes up steadily.

## Recall

1. Is it conceivable that civilization might collapse under the stifling effect of air pollution?

2. Are the increasing number of people a direct cause of air pollution?

3. What is the basic oxygen-carbon dioxide cycle? What holds it in balance?

4. By what means and through what activities has man interfered with the supply of oxygen?

5. What is the role of the tiny plant cells of the sea?

6. How do man's production activities and the objects he produces contribute to air pollution?

7. Has our abatement legislation been effective?

8. What are the projections on combustible wastes for the future?

9. What are the basic Federal obligations under the Air Quality Act of 1967?

10. Are we in need of further research before we take steps to abate air pollution?

11. How does the installation of abatement devices follow a law of diminishing returns?

12. What is the effectiveness of emission devices for automobiles based on California experience?

13. What is the problem of the nitrogen oxides and the sulfur oxides?

14. Are smokestack controls effective?

15. In what direction should we seek the solution of the problems of the internal combustion engine?

## Reflection

1. How would you justify a legislative enactment of the "right to breathe"? Would you say that industry had the right to pollute?

2. Does pure air come only at a price? Who should bear the cost?

3. Should protective delays be built into crisis legislation such as that on air pollution?

4. Is there a Federal-State rivalry for jurisdiction? Is it genuine or fraudulent? Is there a case for centralization or not?

5. Do you agree with Azriel Teller, the economist, who says: "Air is a collective good, and therefore it is society's responsibility to see that it is allocated efficiently."

6. Is it true that if people insist hard enough science can find a way to control pollution?

7. How do we contend with the sentimental hold the automobile has on people? Is it possible to alter that?

## Redeeming the Environment

### Individual and Group Action

1. As a buyer of an automobile you have great influence in the market place. You can use this influence for the public good, if you, and others you convince, cross-examine the automobile dealers as vigorously about the efficiency and continued effectiveness of the air pollution device as of the pickup and safety elements. The motivating force for air pollution control on automobiles and trucks is now the law. Consequently the effort is minimal. But if you create a demand for a superior device, the power of competition will begin to work back where autos are built. Make the dealer justify his anti-smog device with facts and he will bring a new kind of economic pressure on the manufacturer for a gadget of definitely improved performance.

2. Directly or through an organization, investigate the presence (or lack) and the maintenance of anti-smog devices on the public bus lines. Get an official statement of concern.

Whip up public awareness by your commendation or criticism in the letters to the editor, through your columnists, through group resolutions. Find a sympathetic stockholder to call attention to the obligations of the company on the matter of smog at the next stockholders' meeting.

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Study Guide
Lecture #18

## Color Me Green

## Resumé

Remember the opening lines? "Is man black... or white...or yellow...or red? No! The deep inner man says, 'Color me green!'" Man, in other words, craves beauty and natural surroundings by reason of the way he is genetically constituted.

We seem blind to beauty on occasion but were natural beauty to disappear--as it is rapidly doing--we should feel badly deprived. Indeed, the sentiment of patriotism has an ingredient, along with the identification with heroes and ideals,an attachment to a particular beloved landscape associated with the happiness of our past.

Dr. Hugh Iltis of the University of Wisconsin points out that man whose past covers 100 million years' evolution as a mammal, over 45 million years as a primate, and 15 million years as a jungle ape, is biologically hitched to these forebears. There followed some 2 million more years before he knew he was a man. We are linked genetically with that jungle past. We respond to elements of environment associated with it. We have, indeed, more in common with our tree swinging forebears than with the present swinging scene.

We are programmed genetically to fresh air, an unveiled sun, to growing greenery, untainted water, natural foods. That archaic old body of yours--the eye, the ear, the nose, the muscle--is adapted to tasks in an environment quite unlike the one civilization cultivates. We cannot re-program it. Adaptation has limits.

Since there are these limitations, it behooves us to preserve enough of our natural surroundings (to which we have become reasonably adjusted over many millions of years) to provide a psychiatric safety valve. The only quick, emergency adjustment our old fashioned bodies and minds can make to the new, unnaturally burdensome noises of civilization is, of course, deafness. The only adjustment to the new and unnatural mental strains of modern living is quite often insanity.

To save ourselves from becoming a clod or tearing our nature apart we need to protect enough of the environment to which we have become adjusted in order to protect our integrity as humans. It is a biological necessity!

This is also a fundamental social issue, a matter of social injustice. The elite can always find respite in some remote corner of nature; the poor are imprisoned in ugliness and desolation. That is why there is now talk of a conservation bill of rights. It may come too late, for the forces of despoliation are frenzied and powerful. The Everglades, for example, are under the pressure of population and development. Another example is the hill country of Appalachia where strip mining for coal is leaving a scarred and impoverished community to which people cannot adjust.

Beauty is not a luxury; it is an investment in stability.

Recall

1. In what basic sense are we "jungle animals on asphalt"?

2. What is Dr. Hugh Iltis's argument on the need for natural surroundings?

3. How have we adapted ourselves to cities? Wherein have we been unable to?

4. Is there a place, a needed place, in urban living for natural and a green environment?

5. Can you depict the brevity of man's sojourn on Earth? Does it have any biological significance?

6. What do we mean by suggesting that we are programmed genetically to fresh air, an unveiled sun, growing greenery, untainted water and natural foods?

7. What are we doing to deprive ourselves of green? Is this significant? Do we know?

8. What would be the consequences of a biological "adjustment" of man to his artificial surroundings?

9. Why is the destruction of natural beauty a matter of social injustice? What were the recommendations of the task force on open space?

10. What are the forces threatening the great Everglades of Florida?

11. Can you prove that strip-mining is an act of selling the landscape?

12. Is there justification for imposing restrictions on strip-miners?

13. How extensive is the damage of strip-mining in the United States?

14. What sort of provisions of law would offset the worst aspects of strip-mining?

15. Can you re-state the biological argument for putting more green in our environment?

## Reflection

1. "Until man duplicates a blade of grass," Edison said, "nature can laugh at his so-called scientific genius." What is the import of this observation?

2. Is beauty a renewable resource? Breath-taking beauty like the oldest redwoods?

3. Do you agree that love of country is basically love of countryside?

4. Is there biological evidence to support Emperor Napoleon who observed: "Where flowers degenerate, Man cannot live."

5. Dr. Hugh Iltis says: "...total destruction of nature will bring total destruction of man." What is his case?

6. Will continued population pressure negate a conservation bill of rights?

7. What makes the Everglades problem of Florida and the strip-mining question of Appalachia national issues? Why should a New Englander, for instance, be concerned?

8. How does the poem on page 138 of Moment in the Sun relate to the theme of this lecture? It ends:

> "If there's no green the dazzling gold to leaven,
> Then I shall be a foreigner in heaven."

## Redeeming the Environment

### Individual and Group Action

1. "Color me green" is a symbolic phrase; it refers to the touch of nature, to natural beauty. Test the validity of the biologist's conclusion that we are programmed to natural surroundings. Keep a score sheet of your reactions to the scenes that confront you on a given day. What is it that gives you a sense of well-being? What lifts your spirits? Is it a box of geraniums in the window of a tumble-down house? Is it a tulip tree in full bloom? A row of maples? A tumbling creek? Or, perhaps a bright yellow sports car? Where is the balance? What conclusions do you draw?

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## A Dirty Four-Letter Word: Junk

### Resumé

Solid wastes and trash have become a curse of the age of affluence. We are knee-deep in refuse and somehow this state of affairs does something to the state of mind.

Wastes have penetrated the very remaining wilderness; each trail is cluttered. The Sierra Club and others like it are conscience-driven to put on clean-up expeditions in remote places.

Attention is more and more given to the recycling of junk. The junk is not so bad in well-sorted piles on its way to re-use. What is depressing is the haphazard scattering of trash on every beach, in every woodland, along streets and highways. The cost of collecting such junk along our highways is tremendous. It cost 32¢ to pick up every beer can when you include all the overhead of collection.

Joe Bennett in Outdoor America proposed that in the light of the ruination of the outdoors, perhaps we should not only educate the visitor to our lakes, streams and picnic areas and forests, but that we also license and police him while he is there.

As the population grows, the trash mounts and mounts. Regulation is inevitable.

But even as the doubling time of our present population hovers between 35 and 63 years, the production of goods triples or quadruples and so piles up the trash and wastes in ever-increasing amounts. Trash rises at the rate of about 200 million tons a year.

Our theory of trash disposal is distorted. We believe that it must be handled at a profit. We do not regard disposal as a cost of production. We want our cake without washing the baking dishes.

Incinerators, because of their cost -- three to four times that of ordinary disposal -- have not gained favor. What is more, they salvage nothing but the heat (for which some communities, however, are finding advantageous use).

Garbage is, with the advent of the throwaway age, now 50 percent paper. This has encouraged the burning of refuse.

Three tons of trash and garbage can theoretically produce as much heat as one ton of coal. There are problems, however.

The Norfolk, Virginia, Naval Base generates power from burning refuse. A number of cities including New York and Chicago are considering comparable proposals. Hempstead, New York, has a refuse generating plant that pays its way.

This profit-making should be a peripheral consideration. Clean surroundings should be the first thought.

The ideal ought well be the manufacture of compost. But people just don't seem to "dig" it. Elsewhere building bricks are manufactured from the wastes. A blast furnace incinerator reduces the wastes (including glass and scrap metal) to lava cinders.

A growing problem is the disposal of old automobiles. Abandoned cars are a real nuisance even on city streets.

Near Chicago they are engaged in building a ski mountain of garbage and trash. It will be a recreational center undoubtedly under some more romantic name than Garbage Mountain.

One major difficulty is the increasing amount of plastic and aluminum and other persistent materials in our wastes. The manufacturing hand doesn't know what the disposal hand is doing. We are fast coming to the point where the choice to keep America beautiful is no longer ours. The question is can we make it beautiful and unlittered ever again?

## Recall

1. In what sense is littering a reflection of the public mood?

2. Do you think that the clean-up campaigns of the Sierra Club on the wilderness trails could be a model for community effort on litter?

3. What does it cost to dispose of items of trash?

4. Why are we on the verge of licensing and policing the visitor to our outdoors recreational facilities? Is this a sign of the regimentation that always follows on population pressure?

5. How does production increase compare with population increase in the generation of wastes?

6. What symbols of concern have developed over the disposal of wastes? Would you catalogue the Solid Waste Disposal Act of 1965 in that category?

7. What is the case for the incineration of solid wastes?

8. How has garbage changed in its make-up?

9. Is steam generation a technological possibility? What are some of the obstacles?

10. Why don't we compost more of our solid wastes?

11. What promise is there in the process of reducing wastes to raw materials for building blocks?

12. Do you think the garbage mountain idea is a practical one?

13. Should there be some regulation of the manufacture of containers that will not disintegrate -- such as plastic and aluminum?

14. How is our litter and trash problem associated with the worship of ever-increasing industrial growth?

## Reflection

1. What is the philosophical distinction between recycling and the disposal of wastes?

2. Is there a relation between waste disposal efficiency and littering?

3. Should disposal costs be figured in the cost of production of goods? How would this affect the problem of junk?

4. How is population excess related to solid waste disposal? The growth panic?

5. What is socially wrong with the insistence that garbage be disposed of at a profit?

6. In what way is the new oxygen process for making steel responsible for the uselessness and abandonment of old cars?

## Redeeming the Environment

### Individual and Group Action

1. You are on the side of the angels when you oppose litter. Nobody has a vested interest in debris unless it be the manufacturer of aluminum cans and no return bottles or the drive-in hot dog stand. The litter problem in that sense is non-controversial. You can enlist service clubs, chambers of commerce, and, indeed, any community organization in a campaign if it exists, spark its formation if it does not. The form of activity usually consists of a clean-up period but that should only be a beginning. Encourage year-round activity to support effective rubbish collection, convenient trash baskets, and a program of beautification. One organization such as a Chamber of Commerce (whose merchants have a prime role to play) can lead a federative movement that embraces the garden clubs, the service groups, and the youth associations. The main thing to remember is to pitch in actively rather than spend your time muttering along the edges.

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Study Guide
Lecture #20

## To Hear or Not to Hear

## Resumé

The affliction of impaired hearing was once associated with old age. Now it is more largely a matter of decibels -- noise or unwanted sound.

Along with "permissible" doses of assorted toxins and radio-activity we now have a bureaucratically determined "tolerance-level" of noise -- all on the theory that such doses are not cumulative and that combinations are not additionally lethal.

Now what of the effect of noise? A decibel, the lowest sound that can be heard by man, increases ten times for every ten decibel boost. This becomes acutely uncomfortable at the 100 decibel stage. No wonder, with 95 decibels in a subway station, eleven million American adults and twenty-three million children are partially deaf.

Yet, we are scarcely aware of the need to alleviate the problem of noise. Indeed, the need is to prevent noise at its source. It would, in fact, reduce deafness, lower absenteeism, and, if certain investigations with primitive tribes are valid, decrease the incidence of diseases related to hypertension. A whole host of ailments have been attributed to noise.

Even a visit to your airport may have its adverse effect. The multi-engined jet liner is ticketed at 160 decibels. Main Avenue traffic may register 140 decibels.

The young should be disturbed over the noisy world they must live in, but instead they revel in rock and roll that destroys the hearing of a fifth of them before they graduate from high school.

The only defense of the sensitive inner ear against the din is deafness.

The sonic boom is a new abuse. It is noise that cannot be muffled; it can only be prevented. With the supersonic transport, SST, now in development, we trade what little peace we have for speed. We invite acute shock to twenty million people on a single SST trip across the continent. This is the atrocity we propose to inflict on ourselves with subsidy from the public treasury -- to speed the jet set from one hedonistic rendezvous to another.

Even though routed across wilderness, the SST is an environmental abomination. It is only the epitome of a series of ecological offenses that modern technology, undirected, has propagated.

Recall

1. How do you define noise?

2. Does noise constitute an environmental hazard? Why or why not?

3. What is the inadequacy of the "permissible" level or "tolerance" level of pollutants as a social measure?

4. Does man have a threshold of immunity for poisons and radioactivity? For noise?

5. How do you define sound?

6. What is a decibel? Ten decibels?

7. At what level do decibels become dangerous?

8. How serious is deafness in America?

9. What is the relation of noise to technology?

10. What is the effect of noise on human health?

11. What is the sonic boom?

12. What have scientific investigations shown to be the consequence of submission to long or prolonged noise?

13. How does rock and roll affect hearing?

14. Who regulates airplane noise?

15. What is the supersonic boom?

16. What promise does the supersonic transport (SST) hold? What are its disadvantages?

17. Who's paying for the development of the SST?

18. What has experimentation with the sonic boom shown?

19. How do you describe a sonic boom?

20. Does the SST compensate for its inadequacies with safety?

21. What is the economic story of the SST?

22. What is the solution to the noise problem?

23. Did you get the address of the Citizens Against the Sonic Boom: 19 Appleton Street, Cambridge, Massachusetts?

## Reflection

1. Is establishing a "tolerance level" of any poison for a person to bear a legitimate exercise of official power?

2. Is there a right to quiet?

3. Has technology added to or subtracted from the noise level? Do you see any significance in the fact that our constitutional forefathers had straw strewn on the cobblestones outside their meeting hall in Philadelphia? Must technology always be noisy?

4. Is there enough evidence on the effects of noise on human health to justify a public policy of abatement?

5. Should a youngster have the right to impair his hearing out of ignorance or indifference if, as a consequence, he will one day become a public charge?

6. Does a traveling minority in its search for speed have the right to impose a sonic boom on a subjacent and less privileged population?

7. Should an irreversible technological development such as the SST be introduced to use before its social effects are assessed and evaluated.

8. "There is not an area in American Society that fully understands the significance of the noise problem. What I want to see is the emergence of a debate. I want it to come out into the open." These are the quoted words of Robert Baron of New York's Citizens for a Quieter City. Do you agree with him? What follows in the debate he suggests?

## Redeeming the Environment

### Individual and Group Action

1. Gather all the information you can on the supersonic transport (SST) and the sonic boom. Headquarters for the movement is Citizens League Against the Sonic Boom, Prof. William A. Shurcliff, Director, 19 Appleton Street, Cambridge, Massachusetts 02138.

Form a letter writing brigade to alert the public through letters to the editor of the terror that confronts us. See to it that your congressman and U.S. Senators are made aware of the problem. Unless you approach this problem on a crash basis the noise will be programmed into our economic patterns and the abuse will become irreversible.

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Study Guide
Lecture #21

## The Slow Kill

## Resumé

Full adult membership in our society is attested to by the burden--12.6 parts per million--of DDT and DDE equivalent in the human body. It is evident at the tender age of 6 months.

It is high in the United States. Domestic food supplies continue to add to the burden Americans carry. The pesticide industry prospers.

The family of DDT -- the chlorinated hydrocarbons -- has a dramatic history. Hailed as a boon to mankind it is seen now to be a villain. Even the organic phosphates are not persuasively better.

DDT as the quick kill for bugs, the cheap kill in the fields, adds up to the slow kill for man.

We are mortgaging the future for the profligacy of the present. There is, of course, some unease. Ignorantly, confident no governmental system would openly permit harmful practices, we soak our soil in poison. DDT is now found universally. Species such as the peregrine falcon are dying out because of its effects. It is a bitter and lethal part of every food chain. We have evidence of its toxicity to other species; it is folly to think we are immune.

Fish have contaminated the food chain of which they are a part even as they seem unaffected. Wild game in some locations is loaded with DDT. There are simpler, nonpoisonous controls that you can put your hand into without its falling off.

It's really the delayed impact that is important -- and special concern of the young. We greet each new generation of humans with new and lethal brews of pesticides to add to the peril of brink living.

Government agencies, ostensibly set up to protect us, are overwhelmed by the mountain of new products created by the chemical industry. Yet public protest over this abuse of our environment by saturation in poison can well force new alternatives of pest control on agriculture. It can also do something about the additives -- many untested -- that give a long shelf-life to commercial food products.

## Recall

1. What is the burden of DDT and DDE equivalent in the body of an American? How does it compare with that of foreigners?

2. What proportion of our foods has excessive residues of poison?

3. How many pounds of pesticides are used in the United States annually? Can you interpret the figure?

4. Are there any alternative methods of pest control to the persistent poisons?

5. How wide is concern over our predicament with poison?

6. What is the significance of the movement of DDT through the food chains?

7. Where does DDT lodge in the bodies of warm blooded animals?

8. Can a species resist DDT effects and yet poison the food chain?

9. Why do game birds constitute a special risk?

10. What rules of caution ought we apply to the use of pesticides?

11. What has René Dubos to say about delayed effects of pesticide contamination?

12. What handicaps does officialdom suffer in attempting to restrain the users of pesticides?

13. How could an Ecological Council exert an influence over the use of pesticides?

## Reflection

1. How should public policy be affected by the fact that "the fate and effects of many pesticides in soil, water, air, and particularly in animal tissue remain, in large part, a mystery."

2. What is the relation of the pest control program to population growth?

3. Is there a price tag you can attach to the destruction of the environment by poison? What policy direction follows on your answer?

4. Suppose there is only a suspicion that cumulative long, range effects of pesticides will endanger man. How should this affect our policy on pesticides?

5. Has the post World War II history showed that we ought to ban DDT and certain other of the chlorinated hydrocarbons?

6. Ought there be some added control of the commercialization of new pesticide formulae and their trade names?

## Redeeming the Environment

### Individual and Group Action

1. The movement for the banning of DDT is gaining momentum. Michigan and Arizona have led the way. A partial ban has prevailed in New York. Wisconsin is holding hearings on the matter.

Review your notes on the lecture. Read several of the references. Join the Committee for Environmental Information, 438 N. Skinker Blvd., St. Louis, Missouri, 63130 and study its magazine Environment. Now launch an educational campaign and start in motion a legislative effort to ban the chlorinated hydrocarbons.

While this goes on, work on your local officials to cease local spray programs of DDT and other chlorinated hydrocarbons for the control of mosquitos.

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Study Guide
Lecture #22

## No Place to Flee To

### Resumé

In one year 457,000 immigrants entered this country. They came as producers -- but also as consumers of space and elbow room. They create wastes as well as products. If we identify population pressure as a cause of environmental degradation, then we must view this influx of people, the problem of immigration, in the same light.

Actual immigrants run double the established quotas. The issue is not one of national origins or ethnic background although these may have some sociological significance. More basic is the capacity of an environment to sustain the population we impose upon it. It is necessary to look at people in terms of the wastes they generate and the space they consume. To these practical considerations we must bend our more spiritual conception of men. We are, in a very real sense, overcrowded -- quite overcrowded now. Under these circumstances immigration becomes a critical matter.

Actually, immigration is not, and has never been, a matter of compassion. Historically, we have sought more people in order to exploit the great natural riches more expeditiously. It is, indeed, the extravagance of nature on this continent that has accounted for America's economic bounty.

We have cultivated the idea that our reception of immigrants was a boon to the country of origin burdened with too many people. The truth is that in the cases of both Italy and Germany, for example, during their periods of mass exodus, their own rate of reproduction soon filled the vacant places left by the departing migrants. There is a "tolerance level" which is the result of a frame of mind of a people. This makes population pressure a relative matter. If subsistence only marks a society's thinking, they will breed to that level of hardship.

A relaxed immigration policy will only insure massive population pressure in the world as a whole.

New pressures are building up in the Western Hemisphere. Latin America is multiplying at a rate of 3 percent a year. That means their population will triple by the year 2000. Can we withstand that kind of population crush unless we strengthen immigration barriers? A practical as well as a tender conception of the Earth demands it.

Even domestic population migrations seriously compound the social issues. Cities stagger under the migration impact. The statistics certainly bear out the futility of running away from social difficulties.

America cannot hope to relieve the oppression around the Earth. It is physically impossible to become a haven for refugees wherever political oppression or population pressure seeks relief. The price such a policy exacts comes from the land, the environment whose carrying capacity is certainly limited.

This is the demand of the times. We must abandon the superficial arguments about immigration and judge it realistically from its consequences to our living space.

### Recall

1. What is the size of the immigration flow to the United States annually?

2. How do you view immigration from an environmental standpoint?

3. Is the immigration quota the maximum number of people who can enter the United States?

4. Is there room in the modern world for a more spiritual and less mundane evaluation of the role of the immigrant?

5. Is it reasonable to reevaluate public policy such as immigration in the light of national development?

6. What do sociologists mean by the "tolerance level" with respect to population pressure?

7. If there were free movement of peoples would the pressure of people world-wide tend to approximate that of the most crowded?

8. What are the population prospects for Latin America?

9. Is there a humanitarian basis for a liberal immigration policy?

10. Is there any hope in inter-planetary migration?

11. Can you prove that heavy migration from Germany and Italy to the United States did not affect their proportion of European population and, indeed, aggravated the situation?

12. How many immigrants have we admitted to the United States in the course of history?

## Reflection

1. Why is the phenomenon of crowding relevant to the issue of immigration?

2. How does Thomas Fuller's quotation: "If you leap into a well, Providence is not bound to fetch you out." relate to the problem of population pressure?

3. "Balancing people against habitat is a national responsibility." Do you agree?

4. Of what significance to American immigration policy is the 3 percent rate of increase of Latin America?

5. Would it be easier to help people solve their problems within this nation if they stayed put?

6. Can we afford any longer to admit refugees from political persecution? Even though to do so adds to our people-burden? Our own birth rate will bring Chinafication of this country within the foreseeable future. How much sooner will an additional 500,000 foreigners, added yearly, precipitate this eventuality?

## Redeeming the Environment

### Individual and Group Action

1. Watch for legislation in Congress dealing with refugees and immigration. Note how it is generally assumed that this country has plenty of room. Note, too, that the talked-about issues are matters of ethnic origin, economic talents, family connections, etc.

Write letters to the press, to your congressman, calling attention to the environmental strain additional migrants impose upon the receiving country. Determine for yourself whether there is any inconsistency in fostering other measures of population control while admitting large numbers of immigrants and refugees.

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## What's Left in Davy Jones' Locker?

### Resumé

The expectations from and the realities of the sea are incompatible. That the sea is the hope of all mankind is the great illusion.

The miracle of feeding 20 billion people from the sea is widely believed. There are visions of fantastic crops -- as of little pink shrimp. But at the same time ocean staples are being exhausted. Modern technology eats into the sea's resources with a sharp edge.

But most of the prophecy of the food-producing potential of the sea is based on exploiting currently inedible items. There is also much talk of increasing the take of all species. Little, however, is said about the failing condition of the sea, or the progressive extinction of favored species.

Ecologically, the sea is fragile. Its food chains are very complex and overlapping -- and not particularly efficient.

The most productive part of the sea, its bays and estuaries, are hurting from abuse. The rivers throughout the country spill their contaminated waters onto the ocean shores and defile them. The coasts of Maine are far gone in the process of destruction. Clam output has fallen warningly. Yet Maine is not alone.

Winthrop Harbor near Boston is rotting. Raritan Bay, New Jersey, has died. No oysters, almost no fish. These are typical, not exceptions.

Coastal waters, the world over, have become a kind of elongated septic tank. This, along with profligate fishing, has depleted fishing stocks. The prolific Pacific sardine has just about vanished.

The seas do not get much chance to dilute our wastes. Studies of the Nile and Mississippi show that they do not spill out far into the deep; instead, their waters and their wastes ooze hundreds of miles hugging the shoreline.

The edges of the sea are its womb. Most of the sea-life spends some necessary part of its life cycle in this shallow habitat. There, the action of the sun enriches the plant life. There, deep sea species seek safety while young. Bays and estuaries are both the womb and the nurseries of the sea.

A coastal marsh is one of the most productive areas of life on Earth. And it is this choice site, also, that we are developing, dredging, dumping and defiling. We are killing the sources of the life of the sea.

We are seemingly unaware of our abuses. We are still overwhelmed by the myth of the boundless, unconquerable sea. We have failed to recognize the delicacy of its ecosystem.

Surely, there are untapped riches in the oceans. And some are in the boundless deep. But we must depend for future food stocks on the coasts and estuaries, and they are vulnerable indeed to our insults.

So important is this lesson that we propose another session to explore the "salt in our blood" and the universal regime of law that the future of the seas demands.

Recall

1. Is the vision of the bounty of the sea consistent with the reality?

2. What do you think about the possibility of feeding 20 billion people from the seas' productivity?

3. Is the sea withstanding current pressures on its resources?

4. What is sea farming? What are its potentials?

5. Where can we exploit the sea more effectively, according to some?

6. Is there agreement that ocean resources are exhaustible?

7. What evidence is there that food chains of the seas are delicate?

8. What is the effect of rivers and their pollution on the seas?

9. Is what we're discussing a wholly American problem?

10. Is our fish resource diminishing under the effects of pollution?

11. How does it happen that the bays and estuaries suffer most from continental run-off of waste?

12. Why are the estuaries important?

13. How productive is a coastal marsh?

## Reflection

1. Is it true that the sea is fragile? Precisely, what does that mean?

2. Like a drug,there are side effects to the exploitation of the sea. As with oil recovery. Ought the side effects to be weighed on ecological scales? How?

3. "When man comes to the sea, let the sea pray!" Why?

4. "Man marks the earth with ruin -- his control
Stops with the shore. . ."
Was Byron **right or wrong?**

5. Is this sentence from Moment in the Sun too harsh? "The malnutrition of children is appallingly tragic; but the crime lies in society's unrestrained procreation, not in its negligence in producing fish powder."

## Redeeming the Environment

### Individual and Group Action

1. Read what is available on the disposal of wastes at sea-- especially radioactive material and the deadly poisons from our chemical and bacteriological warfare installations. Join with a local group concerned with international affairs and the United Nations. Ask them to form a committee to draft a resolution forbidding or otherwise regulating such dumping of lethal materials in the sea. Get publicity for your resolution and forward it to either our own or a sympathetic delegation for presentation to an agency of the United Nations.

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Study Guide
Lecture #24

## The Salt In Our Blood

### Resumé

There is an affinity, a close physical affinity, of man with the sea. We literally bear its salt in our veins. Even the oxygen we breathe is manufactured in large part by the plant cells of the sea.

Yet we are abusing that sea. The run-off of pesticides and herbicides from our agricultural lands poisons our seas and the oxygen-making diatoms in the process.

We pummel the sea on the premise that it is rough, strong, and immune. But take what we are doing with oil. From a number of sources we insult the sea with oil. Increasing quantities are transported, drilled, and used for power on the sea. When oil escapes it suffocates delicate chains of sea life. The petroleum muck lies deep on the ocean floor in some areas. The whirlpool of the Sargasso Sea pulls so much oil from the surface of the sea that scientific gear probing there comes up heavy in oil. Worse, the food products of the fringes of the sea die or are tainted with the taste of oil. Oysters and clams are often unfit to eat. Feeding grounds are contaminated.

The loss of water birds is horrendous. Our callousness in respect to water birds is shameful. Tanker wrecks, spillages, and bilge waste create deadly slicks for birds. Hundreds of thousands fouled by oil annually meet a cruel and lingering death. This is an inestimable ecological loss; water birds play a vital role in the life of the edges of the sea. Meantime, tankers get bigger and bigger; petroleum more ubiquitous.

We also use the sea as a dumping ground for radioactivity. To this we may add the high level wastes of wrecked nuclear powered ships. As the nuclear reactors multiply so do the fission wastes. The burden of the sea promises soon to be unbearable. It has a limit to what it can disperse and dilute.

All this, and our conventional, everyday poisoning, thrust in doubt the fanciful expectations we have for the sea as the world's larder. Nevertheless, the contamination continues unabated from the run-off of fall-out, from the spewing of power reactors, from the assorted wastes of industry, commerce, and our hospitals and mortuaries. The result is already measurable.

Why don't we do better by our aquatic environment? Because our values are spurious! The world-wide habit of dumping our hot wastes into the sea is a revelation in stupidity, or it may be cupidity. The year 1970 witnesses 3,000 million curies of radioactivity on the production graph! (In the pre-atomic age, there were 10 curies in all the world, and that in 10 grams of highly guarded radium.)

While we think we are diluting radioactivity in the sea, the food chains are busily concentrating it. For our tables, that is.

To combat this anarchical abuse calls for a revolutionary world organization of the seas -- an ocean regime. As it stands, there is little or no regulation of seas' exploitation. Indeed, the trend is for nation-states to assume ever more extensive and competitive jurisdiction. Nobody seriously undertakes to control pollution or anything else. International agreements on oil pollution adroitly skirt the subject. The regulation of rivers and the filth they dump has not begun to be international.

Yet, unless we Earth people come to see our mutual interest, our ecological interdependence, in the Earth's seas, we run the real hazard of destroying them -- and in the process, ourselves. For we are of the sea; there is salt in our blood.

## Recall

1. Of what symbolic importance is the salt in our blood?

2. How does the sea play a part in the ecological drama of making oxygen? How has man threatened this process?

3. Why has oil suddenly become an ecological hazard?

4. What is the effect of oil on the life of the sea?

5. Is there any regulation of oil spills? Are not accidents inevitable?

6. How do oil slicks affect water birds?

7. How will the decimation of our waterfowl affect our own well-being?

8. How do you define the challenge of radioactivity to the seas?

9. What is the significance of the measurable rise in radioactivity of the oceans' waters?

10. Are we making any significant headway in the disposal of radioactive wastes?

11. What forms of radioactive wastes find their way to sea?

12. What do we mean when we say that radioactive isotopes are concentrated in the seas?

13. Does the law of the sea cover the problem of its contamination?

14. Is the drainage of national rivers a matter of international regulation? Might or should it be?

15. What regulation is there of oil spillage?

## Reflection

1. Who is charged with the protection of the seas from the assorted abuses that assail it? Is this a weakness of human organization?

2. Should society run the risk of accident to over-sized tankers? Ought a limit on size be imposed?

3. After the Santa Barbara incident in which an off-shore oil well let loose, what policy would you set up for such drilling?

4. How do you weigh economic gain against ecological hazard? Do we need a special agency to guide us in such decisions?

5. Ought a prohibition against burial of radioactive wastes at sea be laid down?

6. "Not the least of the abuses of the sea are the mechanical development for its more thorough exploitation."
Moment in the Sun, P. 196

In what sense is this true? What can we do about it? What will the effect of population growth on this trend be?

## Redeeming the Environment

### Individual and Group Action

1. From the many accounts in Audubon Magazine at your library (publication of the National Audubon Society, 1130 Fifth Avenue, New York, N. Y. 10028), appraise the threat to the sea birds from spilled oil, DDT, and other assorted dangers. If you live on the coast make your own survey and comparisons. Criticize the present treaties. Draw up treaties and regulations that would improve the situation. Work with the local groups to gain attention for your program.

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Study Guide
Lecture #25

## The Escape Hatch

### Resumé

We worship science, but it is indeed a double-headed monster. Science has no concern with finding social and political solutions to the problems of society. It pursues its discoveries out of factual search -- sometimes, indeed, out of sheer curiosity. Science does not pretend to have any moral code, ethics, qualms, compassion, or inherent interest in public welfare. Indeed, under the incentives offered by antisocial forces, science and technology may move in a destructive direction. Grants-in-aid, subsidies, and glamour and power may enlist science and technology in any direction. They can be used to build; they can be used to stab and kill.

What is more, scientific progress is plagued with side effects. The question is always: Which is worse: the condition or the effects of the cure?

Dr. Barry Commoner often reminds us that science demands no value judgments. That is why the mauling of the environment as a consequence of a scientific undertaking has heretofore been so acceptable. If a defoliator attains its end, if it gives better visibility of troop movements, scientific assessment stops, unless it is redirected to determine what it does to the ecosystem.

Dr. Commoner disparages our abiding faith in science,and points out how blindly we have applied scientific findings only to be appalled at the unforeseen consequences. So much of the danger to man grows out of ignorance. We are playing the odds. The moon probe had (within two-months of lift-off) not fully taken into account the problems of "back contamination."

Dr. Barry Commoner has cited the nitrogen cycle which provides nitrogen basic to all life from nitrogen gas. What, he asks, if we should poison the soil bacteria and no longer have any way of converting the gas to a usable substance?

Insects have an advantage in coping with environmental changes induced by man. By natural selection with short reproduction spans, they can build an immunity in a species. Man is not that flexible.

The point is simply that science has no built-in salvation for the past mistakes of other scientists. Indeed, confront a scientist or a technologist with the side effects of whatever he is working on, and he will shrug it off as someone else's problem. Yet, the situation promises some improved prospects. Scientific societies are fighting off their traditions and focusing on a concern for life.

The development of the supersonic airliner not only belies such a concern, but underlines an abhorrent social injustice. Ordinary people are bombarded with excessive moise so that beautiful people can be indulged with a quick trip for a useless afternoon.

There are some voices pursuing an environmental bond with nature. It's a new elite at the head of what might become a crusading force. Hopefully, in time.

## Recall

1. Can you cite any evidence that science and technology are neutral to the happiness of man?

2. In what sense is science a two-edged weapon?

3. Is the scientist aware or concerned about the social or environmental consequences of his activity?

4. What is the technological crisis Dr. Barry Commoner sees us in?

5. What is the nitrogen cycle? How does its story signal the mindlessness of our scientific efforts?

6. How does the story of venereal disease indicate the limitations of scientific controls?

7. Why do insects build up an immunity to pesticides?

8. Does science assume a responsibility for the social side-effects of its discoveries? Explain.

9. How much support is there for Mme. Curie's premise: "Science is not interested in people -- but only in 'things'."?

10. Does the scientific development of the supersonic transport have overtones of social injustice? Does this consequence affect the activity of science?

11. What role is there for the elite of the scientific fraternity in solving the political issues that science generates? Is this the direction scientific advisory councils are taking?

12. What evidence is there that branches of the scientific cult are moving to marshall their skills for long-term good?

## Reflection

1. Is Dr. René Dubos right when he says: ". . .what is most fashionable and profitable from the point of view of the scientific community is not necessarily what is most needed by society. . ."? Does this conclusion coincide with our folklore about science?

2. How can a society direct the development of a counter-technology?

3. Is science as an institution distinguishable from the body of scientists and technologists?

4. In what sense do we take an atabrin approach to public problems through science?

5. Do you see any political and social causes of our popular scientific idolatry?

6. How would you measure the toleration of society for a sonic boom? How much discomfort must it generate? How many marginal lives can we risk?

7. Do you agree with Dr. Glen Seaborg that the time is propitious for a new "scientific-humanistic era?"

## Redeeming the Environment

### Individual or Group Action

1. With a committee of associates (drawn from the same club or organization) work up a list of scientific or technological improvements that would help the environment. Examples are a more effective combustion device for automobiles, an efficient underground transmission line, quieter vacuum cleaners, trucks, jackhammers, egg beaters! Do the preliminary investigation carefully. Now build a series of club programs around these items soliciting the most knowledgeable participants you can find. Refine your initial position and with the assistance of a newsman prepare a series of features for your local papers and radio stations.

Why isn't science giving us the answers we need?

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Study Guide
Lecture #26

# The Big Snow Job

## Resumé

In our concern over the environment we are victims of a snow machine. Paul Goodman says that the effect of the mass media has been homogenization and brainwashing. The two great snow machines are the governmental bureaucracies, state and national, and the industrial complex.

Take for example, the attitude of the U. S. Research Agricultural Service on pesticides. They tell us in a pamphlet that "agricultural scientists are protecting the food we eat, the water we drink, and the air we breathe." That's a real exaggeration. There is the proper bow to the role of pesticides in food production for the ever-growing populations. Then comes the snow job.

"Our scientists," the pamphlet continues "constantly guard this land." This doesn't jibe with the statistics on pesticide residues on food or the quality of our food on our dinner plate. We are assured that a pesticide must be "safe when used as directed on the label before it can be registered." This is an untruth. Most of our ecological disasters in species poisoning have been the result of "safe" use as prescribed on the label.

The technological optimists keep soothing us into complacency about the population pressure. They talk about push-button farming where we will have four times the normal yield, timed nutrient release, and the elimination of toil and risk. It is a cruel hoax. It represents bureaucratic dishonesty.

The saturation of our environment in poison continues -- even as a measure of sanity is introduced at the national level -- to be a state and local abuse. It is encrusted in ignorance and not a little politics. Yet, here again, we are not only soaked in pesticides but we are immersed in "snow."

The closeness of vested interests to the agencies charged with pest control, and the natural inclination of anybody to put the best construction possible on his own acts, leads such agencies into whitewashing.

The industrial behemoth is the second big snow machine. Each industry extracts the most mileage out of every gesture toward the environment. That, too, soothes the public into believing the problems will be solved by corporate genius.

The corporate image is a father image. A million dollar company program of research is treated as the solution to a ten billion dollar challenge.

We were assured that we had a way of cleaning up spilled oil on water magically until we were face to face with the Santa Barbara spill. We must have industry's helping hand in our gigantic task. We need its brain power and expertise. But we need frank and honest ads; deception can doom us.

As the skies continue to darken and the cars to multiply, the corporate ads promise a total end of smog by 1978. This is irresponsible if not positively dishonest. The gadgets we have for controlling exhaust are not startlingly effective but makeshift, and they require constant expert maintenance.

Another example of the ad man's art is the soporific suggestion that we are on top of the forest product problem because of the vision and know-how of our lumber barons. Yet, at the first sign of increased demand for lumber for housing, because of the pressure of people, these same industrial groups were the first to seek alleviation of the crisis by opening up the National Forests to accelerated cutting! The pretty paintings of the ads were badly scratched.

There are signs, however, that we are becoming honest in our analyses, that we have less confidence in the big snow job. We may really have begun to develop a new climate for a big thaw.

### Recall

1. Who are the two sources of propaganda to dispel our fears of environmental catastrophe?

2. What is the motivation for the assurances on pesticides stemming from the U. S. Agricultural Research Services?

3. Do the residues of poisons on foods found by inspectors support the contention of the Research Service that all is well?

4. Does man's experience justify his unbridled confidence in the capacity of technology to overcome all the abuses of the environment?

5. Is there evidence of attempts to sedate the public in the activities of state and local bureaucracies?

6. Is whitewashing a part of image building by local bureaucratic agencies? If so, why?

7. In the age of exploitation, corporation leaders were tough and offered no explanation of their actions; now they use the "sweet sell," the institutional ad. Why the difference?

8. How is the "sweet sell" related to the fear of public regulation?

9. Is the abatement of auto exhaust emissions as adequate as the petroleum firms indicate?

## Reflection

1. What is the danger of complacency in environmental affairs?

2. Why does the governmental bureaucracy make broad assurances that all is well in the environment?

3. There's a strong movement for the banning of pesticides -- is this evidence of prior foolhardiness?

4. Do you agree with Machiavelli that "one who deceives will always find those who allow themselves to be deceived"? Why is this observation relevant to "The Big Snow Job"?

5. Why do agencies and corporations feel compelled to build a favorable image before the public?

6. Is it true that the more successfully the public is alert to environmental hazards the more intensively are corporate institutions likely to cancel out the concern with their reports of accomplishment? Do we have here a built-in paradox?

7. Does the modern emphasis on oceanography as a key to plenty fall into the category of a "snow job"?

## Redeeming the Environment

### Individual and Group Action

1. There are little snow jobs as well as big. Watch public affairs in your community over a period of time. Is there an air polluter scrubbing his public image instead of his stacks? Is there a junk dealer association making noises as if a pile of old cars is beautiful modern art? Ferret out such an activity and from your findings brief the real issues and facts. Now prepare a campaign in the public interest to offset the propaganda.

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Study Guide
Lecture #27

## Politics -- Where the Showdown Is

### Resumé

What we recognize too inadequately is that conservation goals are resisted by the political pressure of those with an interest, perhaps even a vested interest, in the abuse of the environment. Take even such a reasonable proposal as one to prolong the existence of endangered species. Reasonable enough to grant respite to creatures whose title to a corner of this earth is as good or better than our own. Yet, here are the fashion industries and the pet industries each with its own economic stake in the continued exploitation. Each also has political muscle to clobber those of nobler sentiments who seek to legislate for the preservation of the endangered species.

So it is with nearly all environmental proposals. The legions of good will are loosely put together, poorly informed, and under such circumstances, politically flabby.

The oil interests, for example, are more sharply attuned to despoiling estuarine values than the amorphous public is to defending them.

Legislators are the targets of this political muscle and as the forces become more intensely focussed and the stakes become higher, the influences, too, are more powerful.

This situation places an immense burden on the public-spirited citizen. You have to buttress the defenses of the legislator against the exploiters. Keep in touch with the lawmaker, commend him for his statesmanship when he is worthy of it, contribute to his campaign fund, mobilize your groups to support for a constructive act, provide him with information, see to it that he gets newspaper backing -- counter the money and organized effort of the interest groups.

Not all the exploiters are commercial. Even boards of management of eleemosynary institutions are guilty of short-sighted exploitation in the name of progress. But mostly profit and progress are equated as identical. Nor is the damage always clear.

Take the Bermuda petrel, a thrilling water bird, important in the chain of life. It is the victim of distant applications of DDT in far-off farms, DDT that eventually makes its way to sea, kills fish, and thus the scavenging Bermuda petrel. Now, the motivation for the farmers fighting bugs is intense, the mobilization of champions of the petrel is built around less tangible social goals.

Lord Windelsham of the British communication industry asserts in a study of the role of the mass in public affairs that the role of the "people" is only regulatory. That is, they create the "climate" within which the elite in society make decisions. We are face-to-face with this problem of climate the moment we talk about population control. Despite the pressures of population the climate of opinion still favors the family of three, four, or even more children. The suicidal character of this myth of the ideal family is shrugged off. What does it take to change a mad mood of self-strangulation. Maybe a great environmental catastrophe.

Already the squalor we put up with is such a catastrophe -- but of the spirit and not of the body. When it reduces itself to plague we may jar loose the political forces. But we ought not to wait for crisis.

How ready are you? The masses will not leap to the challenge; they require an elite -- not a social elite or an economic elite but an elite of conscience. A group of environmentalists in St. Louis has gained national eminence by its commitment to public service. There is room for activists by the thousands in the leadership of the campaign for better and more pleasant surroundings.

Any group you form must become well informed, take electoral action, and must sustain citizen support. Soliciting the aid of other groups -- even those remotely allied -- through the passage of common resolutions is a neglected device. Use the public hearing. And bear uppermost in mind that legislators and executives respond to the constituency feedback. Build it.

## Recall

1. What specific commercial interests opposed the enactment of an endangered species bill? Why?

2. What broad lessons do we learn from legislative experience with the endangered species measure?

3. Do you agree that around each abuse to the environment there grows up a political interest? What are the characteristics of such an interest?

4. What specific things can you do to keep your legislator on the side of public interest?

5. Can you think of any examples to prove that abuse of the environment is not always stimulated by the desire for profit? Does cost accounting usually play a part?

6. How does it happen that the Bermuda petrel is being exterminated? Is it possible to weigh this calamity against the benefits the farmer enjoys from his use of pesticides? Why must this decision be political?

7. What yardstick do we use in making our social choices?

8. According to Lord Windelsham what is the role of the mass in influencing public affairs?

9. What do we mean by a social climate? Are we victims of social myths?

10. What demands are put upon the activist?

11. What is the Committee for Environmental Information in St. Louis? Ought it to be a model for other groups throughout the country?

12. What are the steps a group must take to be effective?

13. How can you use the group resolution to good purpose?

14. What is constituency feedback?

## Reflection

1. Can you define "public interest" closely enough to justify a position on an environmental issue?

2. Does the phrase "straighten up and fly right" have any more than a pejorative significance?

3. Why does a bureaucrat or public official seek to exploit the environment?

4. What is the relationship between our accepted values and public policy?

5. "Neither love nor compassion, health nor beauty, dignity nor freedom, grace or delight, are true unless they can be priced," deplores the famed planner, Ian McHarg. Is it an accurate indictment? Is it an indictment?

6. How does our society define "progress"?

7. Do you think a major catastrophe will be needed to alert us to our environmental emergency?

8. How did Nehru justify establishing a preserve for the threatened Indian Rhinoceros against all the human priorities of his land? Was he right?

9. Does democratic theory foreclose a special role for an elite?

10. What is the import of Samuel Johnson's observation that "Power is always gradually stealing away from the many to the few, because the few are more vigilant and consistent."

## Redeeming the Environment

### Individual and Group Action

1. The right kind of public official beseeches your interest. But often citizens are caught in the maze of jurisdictions and authority.

Make a directory of local and state officials whose jurisdiction extends over the environment. These are the persons to whom you make complaints, offer suggestions, or on whom you bestow compliments. Where do you go, for instance, when you see the local stream run thick with sediment from a local housing developer's project? Who is in charge of planting trees for street beautification? Index your directory by subject matter and publish it under the sponsorship of a service, women's, or garden club.

Make sure that your reader understands that *when an official cooperates he deserves a thank-you letter to show continued support for it is after he commits himself that he comes under the pressure of the interests*.

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## Resumé

What we have tried to do in this series is to promote an overall assessment of the environment and to note that all the problems are interrelated. We have tied these interlaced issues together. Indeed, one must conclude that we cannot handle our environmental problems piecemeal. To deal with them individually is like patching one hole in a riddled bucket. The problems are interlinked and underlying them all is population growth.

Yes, indeed, we cannot fail to view not only the problems but the life forms as interrelated. We are each of us a part of a food chain, some quite delicately constructed. To salvage our world we must see the crisis as merely the symptoms of distortions. The distortions of over-population, over-expansion and unbridled technology. All these excesses we can wrap together under the term "overpush."

Ancient civilizations, ignorant of, or indifferent to, the principles of ecology (for that reason as much as any other) collapsed, their luxuries inundated in sand. We ought to mark the signs of disintegration well. The balding hills, the septic waters, the sliding mud, the denuded forests, the nightmarish litter. Worst of all, this time the ills are universal just as the population crisis is world-wide. There is no frontier.

As the leading power in the world, our leadership in population matters has been unimpressive. Our example is not inspiring either in foresight or restraint. Japan, in contrast, is in a social and legal position to take control of population growth should she be pressed to go further. But her program depends, as all must, on literacy and medical sophistication. These are not characteristics of Latin America, for instance, where the population situation is calamitous, possibly the worst in the world.

Population troubles are already programmed into that statistical picture of all the world. The United States is not exempt although our problems may not center on hunger so much as on loss of freedom, mass regimentation and friction, the evaporation of creativeness, joy and spontaneity in a Chinafication out of control. We are already becoming an unimaginative, discontented nation, more gut-centered in our thinking with each passing year.

All of these developments stem from having more people around than we can keep clean or pick up after, more people than we can educate, properly house, police, or build enough hospitals and mental institutions for. The fact that we now for the first time, are planning a calculated raid on our national forests over and above what has always been considered "wise forestry," speaks for itself. By carrying over our antiquated pioneer notion of the desirability of big families, into a new age when people have become a liability rather than a needed "new hand for the plow," we are multiplying our frustrations and foreclosing our future.

This is still a nation of wonderful possibilities. We are at our peak of affluence and power. Never have a people lived so luxuriously. But never (wars aside) have a people been so unhappy and strife-torn over purely domestic problems, either. Our continuing social approval of big families is begging for more misery and of a kind we cannot now even conceive. The distortions of environment being produced by our over-population and over-push are so potentially disastrous that they can sidetrack every effort toward improvement and place us on record as the shortest-lived dominant power in all history. We shall learn that many of the amenities we now enjoy are superficial when compared to the loss of breathable air, clean water, space to move in, and the dignity of human privacy.

We have contended, and fairly reasonably, with the social evils which were attendant on the industrial revolution of the last century -- but only after a spell of virulent muckraking that flabbergasted (there is no other word) the nation. Now, again, a growing number of leaders, scientists, and writers are attempting an exposé of the new environmental evils that threaten our well-being and even our survival. Newspaperman Darwin Lambert calls this evolving movement of guardianship for our suffering land, "Earthmanship." We must turn from our role of heedless exploiters and become loving stewards of our mutilated Earth.

To me, the most dramatic example of our almost complete lack of stewardship (or Earthmanship) was dramatized not too long ago in Nevada. It was there that, in the name of science the oldest living thing on Earth, a bristlecone pine, was cut down to count the rings! Yes, we now know without a doubt that this venerable tree had more than 5,000 annular rings. But in the process we have lost an awe and mystery far more meaningful. And we have lost stature in a way that has a thread of terror in it.

Now, an ecological advisory committee composed of cabinet members, assorted industrial moguls, and scientists of uncertain interests may be a step toward Earthmanship, but a very distorted one. A Secretary of Ecology in the Cabinet itself would call attention to the need for stewardship, but if the Secretary were not a dedicated, independent, life-long ecologist (but merely another political appointee) the step would be worse than nothing. We cannot protect our environment with a group of men who have never given it a thought previously, except to exploit it. A governmental committee of such men merely legalizes or puts the stamp of national approval on further depredation and serves not only to mislead but to mulct the people.

Earthmanship of a quality to redeem this land and the world demands dedication of a kind we have not yet dreamed. An Ecological Council, such as has been proposed in these lectures, envisions a nationally revered body of impeccable men and women whose lives and efforts have been centered on service to society, whose minds are big enough to encompass the future, and none of whom is encumbered with economic bonds or commercial liaisons. Only with people of this calibre can we now save and enhance the land on which we must depend. If we cannot produce such a Council, with all our millions, we are a poor nation, indeed. We are, in fact, not only without ideals, we are without hope.

Adlai Stevenson has said that all hope for the future depends now on the "work, and I will say, the love, we give our fragile craft, this spaceship we call "Earth." The moon astronauts describe it as that "lovely green and blue jewel glittering against the dead-black backdrop of space." We now know it is unmatchable in all the universe. As of this moment it is still in our power as Earthmen either to consume it and ourselves, or to preserve it with that love. Which shall we choose?

## Recall

1. Why is it important to see the interrelationship of environmental crises?

2. How would you define "overpush" as it affects the environment?

3. What is the justification for stop-gaps to halt and abate the immediate abuses to the environment?

4. Is the fate of ancient civilizations related at all to ecological ignorance or indifference?

5. What is the environmental lesson taught by these fallen civilizations? Are we heeding it?

6. Why is it that we hasten the destruction of our surroundings at a pace more rapid than past peoples?

7. What two advantages does Japan and any developed country bring to the problem of population control that an undeveloped country cannot command?

8. Do the muckraking era and the reforms accompanying it offer any inspiration to a country beset as is ours by the even more critical problems of the environment?

9. How do you define "Earthmanship"?

10. What scientific justification is there for regarding the earth as a little space ship with vulnerable reserves of air and soil?

## Reflection

1. What observations can you make of your surroundings of characteristics that seem to head us in the direction of ancient civilizations?

2. Is it adequate to consider population growth only in terms of food supply?

3. Does our personal approval of large families contribute to the gravity of the population problem? Explain.

4. How scientifically valid is Dr. Hugh Iltis's observation: "The problem is one of a single species of animal who is making the earth unfit for habitation by conquering it."

5. Is critical self-appraisal a sign of weakness or the strength of a nation?

6. Do you share the outrage expressed over the cutting of a 5,000 year old Bristlecone pine? What justification is there for your position?

7. Does a successful campaign for the preservation of the environment depend in part on emotional support akin to patriotism?

## Redeeming the Environment

### Individual and Group Action

1. Earthmanship calls for personal stock-taking. Draw your own profile to see whether you are living up to the demands of this moment of crisis. Are you pursuing only your personal interests or are you budgeting a share of your time to environmental activities? Are you supporting watchdog organizations? Are you in your personal life breaking down the apathy that engulfs so many of us?

Actually, cast up a balance. Write it out in specific terms to evaluate your stewardship of your surroundings. List the proofs: When did you last express a concern in an environmental campaign? Write a letter? Organize a delegation? Attend a hearing? Study an issue? Participate in a briefing? Lodge a protest? Make a contribution? Are you proud of your accounting or have you betrayed your responsibility?

2. How can your groups further establishment of an Ecological Council of the quality described, endowed with enough power to effectively champion the environment?

3. A drastic lowering of the birth rate appears to be the major factor in helping us redeem our land. The all-powerful forces of public opinion and social approval are formulated by you, in your groups and encounters. The fate of America is in your hands.

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